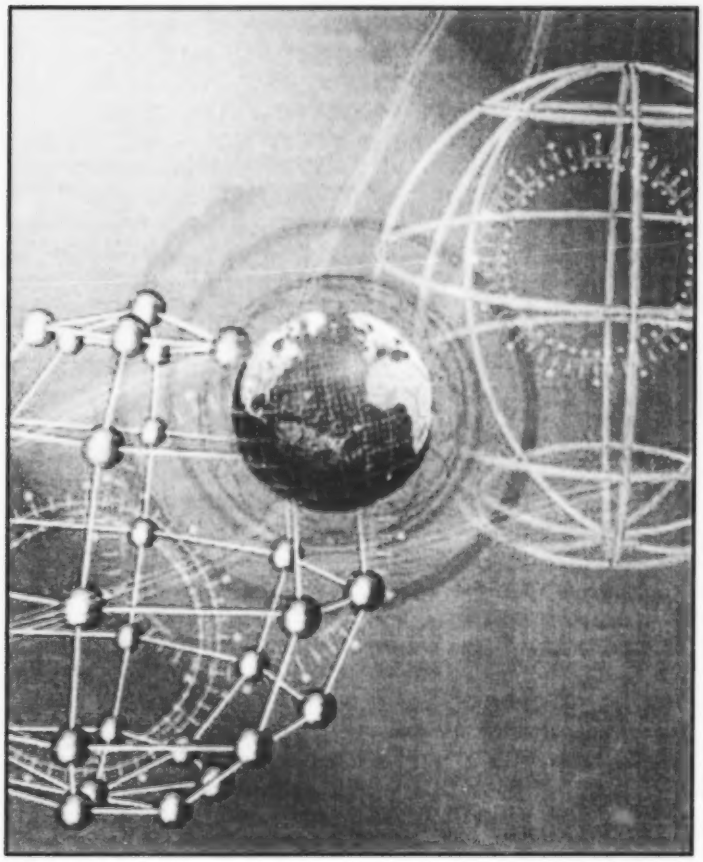
ENSURING THE SUSTAINABILITY OF ONLINE CULTURAL AND HERITAGE CONTENT: FROM AN ECONOMIC MODEL TO AN ADAPTED STRATEGY



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CANADIAN HERITAGE

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Summary

The Canadian Culture Online Branch of the Department of Canadian Heritage, with a view to improving management of programs supporting the online availability of cultural and heritage content, is interested in the factors that affect the economic sustainability of online content. The Branch commissioned M2W to conduct an initial study on the subject, one with an international scope.

Context and mandate

This study is based on an exhaustive literature review and eighteen interviews conducted all over the globe with professionals in cultural and Web-related fields representing mainly cultural institutions, government departments, Web producers/publishers, broadcasters, new media artists, and intermediaries from the cultural sector.

Our primary objective was to understand the Internet as a medium by identifying the main factors that affect the value of projects on the Web. We created a list of determinants that can be used to establish comparisons and benchmarks. That model was then validated using two methods. First, we examined the business strategies that appeared to be most successful on the Internet. Those strategies focus on one or more of the determinants we identified. Then, to confirm that these results also applied in the cultural sector, we created case studies of various cultural organizations from all over the world.

While some strategies seem promising from an economic perspective, we also had to take into account the technical and legal constraints that may impede a project's economic viability. Beyond a simple economic approach, our goal was to identify all the key elements that may factor into the success of an online cultural initiative.

The Value of Online Content: A Few Determinants

The value of Internet content

The Internet is a complex medium, as Web content can be reproduced easily and without limit in a context where there is little to distinguish one site's content from the next. Scarcity appears to be a concept difficult to validate on the Web. Because our study focuses on the value of online cultural content, it was necessary to understand the determination mechanisms that might, in the classical economy, maximize the exchange value of such content. Since the Internet is still largely perceived as a free means of delivering content, more attention was given to certain determinants.

Content distribution and exchange

The Internet is at once a means of content distribution and exchange. We took both those components into consideration in order to understand how profitable niches can be developed vis-à-vis the users of a product or service.

Various characteristics of Internet content were collected, as these elements influence value determination.

Characteristics of Internet content

The determinants concern three principle aspects: the content's method of transmission, positioning, and properties of reuse. For example, the role of the user will vary depending on the method of transmission. The more the method of transmission focuses on exchange, the less a project promoter can control content transmission; on the other hand, users will become a creative element in content transmission.

Although it is easy to identify the type of content, our findings indicate that it is difficult to anticipate how users will use that content. Levels of interactivity and appropriation should be

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Characteristics of use

based on the target audiences; to reach those audiences, content must be adapted to its various potential uses. For example, a high degree of user involvement may be positive when the project relies on content exchange.

Identifying audiences

The Internet is a universe unto itself. If the goal is to reach a target audience in that tumult, the target must at least be defined. Many projects fail to adapt their content to specific target audience—a common weakness. Although unexpected uses may arise, thus attracting new users (from a professional service to a service for the general public, for example), it is also worth noting that when specifically adapted for other audiences, the same content can be offered as a number of products or sub-products.

Funding of Online Digital Content: Theoretical Elements

Who pays?

Based on our research, no generic models have been developed specifically for the funding of online content. Moreover, since most references on the Internet economy are anecdotal, we examined the types of exchange on the Internet and their conditions. There are three potential sources of revenue: the client, the provider, or a third party. From the Internet's inception, the intention was to favour payment by a third party, notably through advertising. Given the relative success of that approach, providers have been turning to clients as the main source of revenue. The fact remains that, today, the provider still often picks up the tab on the Internet.

State funding

In the cultural sphere, however, the state is a major source of funding, either as a provider or a third party, and most studies indicate the state will continue to play the dominant role in the delivery of online cultural content.

Business strategies on the Net

Beyond the economic models, we examined business strategies on the Internet. Despite the preconceived notion that the Internet has radically changed conventional models, only limited attention has been paid to this aspect. Among the main categories are the community model, the subscription model, the utility (pay-as-you-go) model, and the advertising model.

A hybrid approach

Although the theory allows for the simplification of various strategies, it should be noted that successful projects rely on a mix of these approaches, thus diversifying strategies for generating revenues … and controlling costs.

The attention economy and trust

In addition to strategies, all organizations face two imperatives when they venture onto the Internet: attention and trust. There is no point in achieving visibility on the Web if an organization cannot create the conditions that allow Internet users to become captive. Without these, no commercial approach is possible. Once attention is captured, trust must be created; without trust, there can be no exchange. We found that, all things being equal, attention and trust are transferable. Reputable cultural institutions that are seen as highly legitimate can be very effective backers for key projects.

The Economic Sustainability of an Online Cultural Initiative: Far from Standard Models

To complete our analysis, we examined eight concrete cultural initiatives on the Web. In that limited sample, not every case is a success story. However, all the projects serve as examples of various business models and very different realities.

Case studies

- Two very active digital art and photography communities: Rhizome.org and Photo.net;
- An interesting comparison of Web site positioning for two major museums: the Louvre and the Metropolitan Museum of Art;
- Cogniscience, a publisher specializing in education that is banking on online

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mathematics to support curricula;
- A television production company, Télé fiction, that sees the Internet as a worthwhile complement to a television show;
- Two management networks, one in e-learning (Fathom.com) and another that sells digital material of heritage value (Scran.ac.uk.).

Mixed content

Reuse of content

Based on our research and these case studies, we identified a series of trends that seem promising for making online content profitable. It is interesting to note that most self-funding initiatives today develop free content in order to sell other content or services either on or off the Web. This approach seems obvious, but requires a good command of paid content versus free content. Similarly, content may be delivered free of charge but may be designed for its paid reuse, whether in whole or in part. Reuse of content can be a source of revenue for many cultural initiatives.

Cybercommunities

In another line of thought, this study raises many elements that support the development of value through exchange networks. Because the Internet is ideal for developing community aspects, cybercommunities may well increasingly serve as leverage in the development of the cultural Web. This study also identifies other trends that may contribute to the success of an online cultural initiative. These include funding by a flagship that enjoys the right reputation among the potential users of a product or service, or the sharing of services to reduce costs.

Technical Risks that Affect the Economic Sustainability of Content

The cost of obsolescence

This study would have been incomplete without a look at the technical aspects that affect a project's profitability. Although some cultural Web sites with an ephemeral vocation can disregard the cost of maintaining content, operating a site, and keeping it online, the rapid obsolescence of a Web project means every promoter has to find an appropriate strategy for its entire creation process. There are many types of obsolescence: it can affect hardware, media, and formats. It is therefore vital to identify solutions that facilitate the migration or emulation of digital collections and to adopt standards that allow for long-term use of the content. Though difficult, that task is a determining factor for the future of a project. From this perspective, the importance of adopting standards that support metadata is clear.

Obsolescence of use and content

Technologies age quickly, yet other types of obsolescence must be taken into account: that of content and use. In fact, with the Internet being the victim of media it is, a Web site that is not updated regularly or that fails to factor in changes in Internet use quickly loses its audience. Given the quantity of cultural and heritage content available to Internet users, it is vital to consider the cost of keeping that content online over the long term by adopting progressive, adapted strategies. At a time when the science of digital conservation is still in its infancy, it is a matter of minimizing risks in view of the lingering elements of uncertainty.

Legal Aspects of Online Cultural Content

Rights difficult to obtain

We thought it necessary to conclude this study by taking stock of the legal issues that may come into play in the economic sustainability of online content, since cultural content is often associated with complex issues related to administration of copyright. Our interviews confirmed the trend toward Web publishers preferring to develop original content rather than having to manage the rights associated with using certain works on the Web. They face two major hurdles: first, it is difficult to find copyright collectives for all the works available in digital format and second, where they exist, they do not necessarily have Web-adapted

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A legal obstacle to industry development

strategies. While some media like television, radio and books have an organized system to compensate copyright holders, this is not the case with the Internet, and the rights are often too expensive to acquire. Some sites would never have been created unless the copyright holders had decided to support online collections. Although it is difficult to estimate the exact cost of administration of copyright by project type, it is clearly an obstacle to the development of a cultural industry.

Ensuring the survival of Web-based works

Copyright is managed differently depending on the country of origin. Some systems favour the artist or author, others the distributor. In a digital era, it follows that more and more content is available online, the artist having released the rights to facilitate its reuse. At the same time, it is difficult for libraries or archivists to keep a digital copy of content available only on the Web, since rights are often just a licence for use. If a Web site were to disappear, its content would not be on a shelf and would certainly vanish. And there is no real legal or technical solution that would allow us to state today that our digital culture and heritage will be protected tomorrow.

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Recommendations

Context of Recommendations

Not all economic models on the Internet are based on the same approach. Nonetheless, it is important to encourage creative initiatives that take into account the characteristics of this new medium. Since it is not yet mature, **trials must be encouraged and errors allowed** —at least, that is the experience of the players most present on the Web. In the course of our research, we identified six trends that appear to be key in developing strategies for making content available online:

- **a mixed content approach;**
- **taking advantage of the Internet to reduce costs;**
- **the reuse of content;**
- **cybercommunities;**
- **funding by flagships; and**
- **a multi-distribution/multi-medium approach.**

Our recommendations are based on these approaches and their main purpose, given the scope of this study's topic, is to develop an environment conducive to online culture.

Since its inception, Canadian Heritage's Canadian Culture Online Program has made possible the online availability of a critical mass of distributed cultural and heritage content. With such a wide-ranging program, the content is diverse and relates as much to the digital collections of most Canadian cultural institutions as to initiatives that are designed to promote or popularize culture in order to reach the widest audience. **It is important that this content be used and that it generate a strong and sustained demand for a living Canadian culture on the Web.**

Quotation: "Canadian Heritage must create heritage, not conserve it; it must give young artists the chance to promote their work...(through the Web)"

A. Canadian Heritage should foster the development of a participative culture suited to the characteristics of the Internet if it intends to reach its audience.

The medium's exchange values should be developed in order for culture to thrive on the Internet. This aspect is especially important because it is usually overlooked.

Quotation: "Appropriation means that people want to do more than just consume culture: they want the opportunity to become an active element, to contribute to culture in their own way."

Quotation: "We are very attentive to the community or collective aspect of sites. It's not easy to charge for something in which users have no stake."

While there are any number of cybercommunities in fields like information technology, they are in their infancy in the cultural sector. We examined projects like Cipher, Rhizome, Photonet and Ircam, which serve or will serve as a catalyst in developing user interest in cultural content. Such communities allow for:

- **promoting specific content: digital art, photography, local heritage, music;**
- **exchange among professionals, experts and amateurs: fosters training as a result;**

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- **encouraging users to become *active* and making it possible for them to participate, since *a high degree of appropriation* leads to long-term participation;**
- **facilitating constant renewal of content by the participants, allowing each user who has *adopted* the site to become *captive.***

Several essential elements must be considered in order to develop these communities:

- **target the theme;**
- **design and organize the various levels of participation, from adoption to active participation;**
- **encourage participation by moderators and experts;**
- **deliver and update reference content.**

Adaptation is key when transitioning from a distributional approach to a mixed approach that pairs exchange with distribution. However, if most cultural initiatives are to carve a niche for themselves on the Internet, Internet users must be given more opportunities to interact with content.

B. Beyond its efforts to provide a Canadian Web portal for online culture, Canadian Heritage should foster the development of thematic and participative portals.

Canadian Heritage launched a portal, Culture.ca,[1] designed to promote online Canadian culture, notably by posting links. However, it is difficult to manage every cultural aspect with a single portal and to provide the visibility necessary for key initiatives. Canadian Heritage's mission in this regard must include facilitating the creation and maintenance of thematic portals that encourage exchange.

This type of initiative emphasizes the cultural projects most popular with the general public (user validation process), as portals allow both publishers and Internet users to suggest and comment on Web sites. Each portal must be specific enough to allow for the creation of a participative community. These Portals are relatively inexpensive and largely favour quality initiatives that previously failed to reach their audience.

Internet users increasingly resort to this method of communication to determine the value of cultural content they might want to consume, whether it be a film or a book. Amazon makes wide use of that advantage.

The Culture.ca portal would be a very effective vehicle for promoting all thematic portals.

C. Canadian Heritage should make a special effort to support initiatives with a history and an existing audience.

An organization that has already established a relationship with its audience on the Web is more likely to generate another audience. Although attention and trust are not always transferable, the fact remains that experience in one field allows for validation of a larger-scale model.

For example, a project's scope can be widened from a professional audience to the general public. Internet users are sensitive to certain initiatives aimed at professionals, since access is easier on the Internet for the average user. Projects should be adapted to the characteristics of the new clientele.

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[1] www.culture.ca

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This recommendation can also apply under a partnership approach, with the producer-partner benefiting from traffic and activity on the site.

It would be interesting in this respect for Canadian Heritage to consider a labelling process for initiatives that are popular with the public, thus giving their promotion a wider scope.

D. Canadian Heritage should develop, within its *Critical Mass* program, a process for rationalizing funds earmarked for digitization and availability of heritage content.

Quotation: "There needs to be more editorial work. There's too much content without explanation or added value. That is more important than the number of images available online. That fantasy is outdated."

Institutions that digitize cultural heritage are beginning to adopt a more rational approach, selecting which content to digitize from the perspective of creation. Digitization is expensive, and **priorities should be based on how the organizations can use the digitized content, whether directly or through a third party**.

Likewise, digitization must be modular to facilitate content reuse and to include all the information and processing needed to give the content context. **The easier it is to break down content, the more likely it is to be reused in other contexts and through other distribution methods.** Content reuse will become an important element in the future, especially as technological and XML standards evolve. **Potential reuse of content should therefore be considered when the content is created.**

E. In addition to its Electronic Copyright Fund, Canadian Heritage should immediately step forward to deal with the legal impediments to creation.

Although content reuse will become increasingly common, particularly as a source of revenue, content is currently difficult to reuse due to the lack of organization in administration of copyright. This shortcoming is a real impediment to creation for many Web producers, who would rather ignore the cultural sector. **Action must therefore be taken to foster the development and aggregation of copyright collectives. Canadian Heritage must also focus on facilitating processes for producers who are interested in the content of cultural institutions.** For example, it might encourage the development of standard licenses for use or assignment of rights on content.

F. Canadian Heritage should support projects with diverse yet targeted products and services. Similarly, where projects allow, diverse revenue sources should be a priority.

To benefit from the Web's characteristics, particularly its interactivity, content must be adapted to identifiable target audiences and the same content should be used for several products or services. **This results in more opportunities to access the content and thus, more opportunities to reach the audience.**

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This is a determining factor when the goal is to charge for online content. **The user must be given a choice of services or products in order to access the content.** The choice, for example, may be based on:

- *method of payment:* subscription paired with the pay-as-you-go approach or a voluntary contribution;
- *type of access:* specific access versus broad access;
- *content quality:* low quality versus high quality.

G. Canadian Heritage should carefully consider the technical and technological risks associated with making reference projects available online when they are to be conserved over the long term.

The economic sustainability of many online heritage initiatives is highly dependent on technical considerations. To remain online, projects must overcome potentially costly technical challenges:

- *maintenance:* cost of bandwidth (audio or video projects), content updates;
- *obsolescence:* of software, hardware;
- *reuse/transfer:* choice of a data-tagging standard.

That is why these aspects must be considered from the outset if online content is to be conserved over the long term without requiring exponential reinvestments.

In this respect, Canadian Heritage must continue to support the creation, evaluation and adoption of international metadata standards and solutions that facilitate content migration and software emulation.

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Chapter 1 – Introduction

1.1 Terms of the Mandate

"The Canadian Culture Online Branch of the Department of Canadian Heritage develops and implements policies and programs designed to foster the creation and accessibility of Canadian cultural content on the Internet. To date, over one million pages of text and other digitized content have been made available online through funding by the Canadian Culture Online Program. The next step is to ensure the sustainability of that content in the years to come, so that it remains available for the benefit of Canadians. This study focuses on the factors that affect the sustainability of online content, as well as current and future business models from Canada and from around the world that may ensure the sustainability of content." (Canadian Heritage, April 2003)

1.2 Parameters and Structure of the Study

The Internet is an incredible means of delivering digitized content from other media, but it is first and foremost a new medium that is radically changing the habits of Internet users and even consumers. The Internet is not television, not film, not a book, and not radio. The cultural Internet has unique characteristics and features that will be examined in this study.

The Web is vast and representative of the many cultures that are part of it, including national and international cultures, institutional sectors, and most cultural industries. Accordingly, we wished to avoid defining online culture too restrictively. The expression "online digital cultural and heritage content" is thus taken in its broadest sense, i.e.:

- all digitized collections of contextualized cultural works that are available online;
- original Web-based artistic creations; and
- projects relating to popularization, education, reference, entertainment, and promotion of culture and heritage.

That content is made available by government and non-government cultural institutions, specialized Web producers/publishers, artists, and broadcasters. Generally, the news media and the video game sectors were not considered relevant to the scope of our study.

This study is based on an exhaustive literature review and eighteen interviews conducted all over the globe with professionals in cultural and Web-related fields representing mainly cultural institutions, government departments, Web producers/publishers, broadcasters, new media artists, and intermediaries from the cultural sector.

Our primary objective was to understand the Internet as a medium by identifying the main factors that affect the value of projects on the Web. We created a list of determinants that can be used to establish comparisons and benchmarks. That model was then validated using two methods. First, we examined the business strategies that appeared to be most successful on the Internet. Those strategies focus on one or more of the determinants we identified. Then, to confirm that these results also applied in the cultural sector, we created case studies of various cultural organizations from all over the world.

Some strategies seem promising from an economic perspective, but we also had to take into account the technical and legal constraints that may hamper a project's economic viability. Beyond a simple economic approach, our goal was to identify all the key elements that may factor into the success of an online cultural initiative.

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1.3 Context

After reviewing the literature on economic models and business strategies about the Internet, we rapidly concluded that the Internet economy is still at the trial and error stage. As yet there is no structured, adaptable model for content that can systematically ensure the sustainability of Web projects.

Most of the information available on the economics of Internet content is rather descriptive or factual. It is much harder to find references on the medium's real value or on its characteristics in terms of content distribution and exchange. Little has been written on the value that users give to their online experience.

Focussing more specifically on the cultural and heritage environment, examples are not only harder to come by, but are not always convincing from an economic perspective. Where profitability is achieved, it is almost always within a highly subsidized framework. In this study, therefore, it should be noted that:

- the public widely believes that Web content should be free; that being said, free content models have yet to prove their economic viability;
- most cultural niches benefit from a more or less generous support system for creation, production and distribution/dissemination; thus, culture is rarely held to strict economic viability; and
- when culture is part of a public service approach, it must be free and accessible to all.

This study addresses various cultural contexts on the Web. We will begin by examining those contexts in terms of traffic and popularity with audiences.

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Chapter 2 – Increasing the Value of Online Digital Content: The Determinants

How can value be created on the Internet? Which strategies can ensure that a visitor will adopt a Web site? Can a constant value for content distribution on the Internet be identified? What is the medium's real potential? These are a few of the questions addressed in this chapter, which identifies the main determinants of use value on the Internet. If users find a Web site useful, it will be successful.[2]

2.1 What Does Value Mean on the Internet?

The context of the Internet is complex, multi-faceted, and difficult to understand. Among the new means of communication, it has an approach on its own. Since it was launched, many analogies have been used in an attempt to describe the medium succinctly, emphasizing the unique, intangible nature of cyberspace. It has been compared to a virtual library, a universal encyclopaedia, an information highway, a marketplace, a next-generation television, and more.

These analogies and comparisons have their use: they have convinced both businesses and individuals to take an interest in the Internet. Beyond their initial curiosity, many have found an enduring interest in the medium and have appropriated it. The circle of original Internet users has grown to vast communities of users that include, to varying degrees, from one-third to two-thirds of the population in industrialized countries. It has thus become relevant to examine the value attributed to the services and products available on the Internet.

2.11 Use Value and Exchange Value

The term *value* is ambiguous and needs to be defined more clearly. The work of economist Adam Smith has led to the identification of two types of value.[3] In its first meaning, *value* refers to the usefulness of a given object or service to an individual: *use value*. In its second meaning, *value* means the purchasing power bestowed by ownership of an object or the ability to perform a service: *exchange value*.

Goods that have a great deal of use value do not necessarily have a great deal of exchange value. The air we breathe has a high use value, but no exchange value because it is abundant. Use value may result from usefulness to a single person[4] or a very specific usefulness.[5] The same applies to documents saved for legal purposes.

Exchange value is based partly on use value: if a good or a service is of no use to anyone, its exchange value will be nil. Apart from that, exchange value basically stems from two sources: scarcity and the amount of work necessary to obtain that good. Classical economy describes scarcity as that of artistic masterpieces, rare coins, or land vital to creating a good wine: no amount of work will increase its availability.[6] A good or service that requires many hours of work is generally more expensive than one produced quickly, notably products mass produced with machinery. As a rule, human work creates value. Use of capital lowers it significantly.

Archivists and librarians, for example, assign much importance to digitizing and conserving items whose exchange value is difficult to evaluate, but which may be useful. In this case immediate market value is disregarded in favour of historic *option value*, given that from non-use, future use is expected. Note that our

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[2] "As one digitization expert interviewed for the study aptly pointed out, it is not the quantity of content available in a digital product that is of key importance, but the quality and usefulness of the content from the user's perspective." From WALL COMMUNICATIONS. *A Study of Business Models Sustaining the Development of Digital Cultural Content*. Ottawa, June 2002. p. 49.
http://www.wallcom.ca/Documents/DigitalCultContent.doc.

[3] SMITH, Adam. *The Wealth of Nations*, 1776.

[4] For example, an object's sentimental value.

[5] For example, the historic value of a document that will only be recognized by specialists in a given field.

[6] RICARDO, David. *On the Principles of Political Economy and Taxation*. Chapter 1: "On Value."

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interest here lies in value on the Internet in general and not associated with culture in particular, since the economy of culture is shaped by values beyond classical economy, notably *symbolic value.*

2.12 Obstacles to Exchange Value on the Internet

The above introduction to the concept of value allows us to identify two reasons why it is difficult to sell Internet products. Scarcity is alien to the Internet and more particularly to dematerialized digital content.

The lack of scarcity on the Internet is easy to explain. First, documents and digital images can be copied quickly and without error at a marginal cost of nil or close to nil. Information is therefore disseminated very rapidly. Second, content is not destroyed by consumption as with most other goods. On the contrary, valid and useful information will often be recopied and sent to other users.

All this information creates a climate of abundance. As such, the rules of microeconomics are useless in setting a price. A certain scarcity must exist for the price of a product or service to be set. Why pay for a good or a service that can be found anywhere for free, or almost free? It is difficult for such abundance-based markets to find equilibrium.

The Internet depends on the work of machines. So far it has been difficult to determine the value created by machines. Although artificial intelligence has not yet generally proven that it can replace human work, the machine is becoming ever more conscious. In the future we will increasingly be able to integrate this source of value into the equation of interest to us here. Artificial intelligence, after all, is simply the result of complex algorithms created by intense human work.

How can exchange value be created on the Internet? Let us reverse the two propositions described here. What can be done when content is not scarce? Create content that sets itself apart in order to become more relevant to us. And if machines are still limited? Then humans must continue to play a vital role in the medium.

2.13 Distribution and Exchange: Two Separate Sources of Value

Since the Internet became a matter of public debate, content has been a central issue. What would be put on the network and how would access to those services be organized to make them attractive and give them value? The question was incomplete, as it overlooked a fundamental component of value on the Internet: connectivity, that is, the ability to establish direct links with everyone on the network.[7]

The result of that historical bias is that the Internet is still widely perceived as being first and foremost a content delivery system. It is true that the network lends itself well to delivering a substantial amount of content: software, music and, within the limits of available bandwidth, video broadcasting.

Robert Metcalfe, inventor of the Ethernet local area network, came up with a law that now carries his name: "The power of the network increases exponentially by the number of computers connected to it,"[8] or the number of users, which amounts to the same thing In other words, the Internet has something extra to offer through its connectivity, thus creating a determinant of its value through exchange. Interactive

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[7] "One of the most important capabilities of the Internet relative to previous mass communication technologies is its bidirectionality (…) [F]or the first time in human history, individuals can make their personal thoughts, reactions, and opinions easily accessible to the global community of Internet users." DELLAROCAS, Chrysanthos. *The Digitalization of Word-of-Mouth: Promise and Challenges of Online Feedback Mechanisms.* Center for eBusiness at MIT, March 2003, p. 2.
http://ebusiness.mit.edu/research/papers/173_Dellarocas_Word_of_Mouth.pdf

[8] Quoted by Jeff Tidwell: http://www.infonortics.com/vc/1999/tidwell/tsld007.htm. The commentator adds, meaningfully: "Yeah! I add that the value of the human experience increases at the same rate when in collaboration with another."

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television, other than its usefulness in content dissemination, does not really have that capacity, since it limits exchange to a user-provider relationship. As such, Metcalfe's Law does not apply.

How can exchange value be illustrated compared with distribution value? In 2000, for example, the most recent year for which these data are available, about 2,100 billion static Web pages were delivered through the network—a considerable mass of information. But at the same time, 610,000 billion electronic messages were also sent.[9]

Those 610,000 billion e-mail represented about 11,285 terabytes of data. In contrast, the publishing industry produces 8 terabytes of data per year and the magazine industry, another 37 terabytes. Even the powerful entertainment content distribution systems that are the music and movie industries represent only 58 and 16 terabytes of content respectively each year. In fact, only American television, with 14,150 terabytes of data, beats e-mail.

The most surprising figure marks exchange: digitized, all the telephone conversations that take place in the course of one year in the United States alone represent 576,000 terabytes of data. In short, e-mail remains the true reigning application on the Internet. Its closest cousin in the material world is the telephone, the most powerful of connectivity tools. There are interesting parallels to be made between those two means of exchange.

Historically, for example, it was thought that the telephone would be used primarily for broadcasting, not for person-to-person communication. Many businesses attempted to broadcast information and music[10] by telephone. These efforts were abandoned after World War I when the radio rapidly developed as a mass broadcasting medium. At the same time, the telephone became the very archetype of the person-to-person communication tool.[11]

Why did content distribution via telephone fail? In Budapest around 1900, basic telephone service for person-to-person calls cost 150 forints per year. Telefon Hirmondò, the local phone company, charged customers 18 forints per year for telephone content. In other words, connectivity was worth eight times more than content in the eyes of the users.

In 1997, in the United States, the sale of telephone services reached US$256 billion. Sales associated with content distribution, however, were more modest: $37 billion for the television industry; $14 billion for radio; $55 billion for newspapers; $20 billion for magazines. Even Hollywood, with $63 billion for the movie industry, cannot compare to the telephone industry.

The Internet has this characteristic: it is an increasingly powerful medium for content distribution, particularly with growing bandwidth, and is also an excellent tool for fostering exchange at every possible level. Its exchange value is thus determined by factoring in these two parameters. Faced with the phenomenon of natural abundance in the distribution of Internet content, it would be worthwhile to consider the high exchange value stemming from Internet connectivity. The value of the Internet as a medium is not tied to a single model. For that reason it is difficult to draw on another medium in order to develop business models that are adapted to its reality and to its multi-faceted nature.

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[9] LYMAN, Peter and VARIAN, Hal R. *How Much Information,* 2000. Data excerpted from http://www.sims.berkeley.edu/how-much-info on May 27, 2003.

[10] For example, in France, Clément Ader tried to broadcast opera sessions.

[11] ODLYZKO, Andrew. *Content Is Not King.* Revised version, January 3, 2001. http://www.dtc.umn.edu/~ODLYZKO/doc/history.communications2.pdf. This daring and often cited text compares the Internet to the telephone and mail and proclaims the primacy of connectivity over content.

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The Two Main Models on the Internet	
Distribution	*based on one-to-one relations, like client-provider relations*
Exchange[12]	*based on relations with multiple participants, whether organized or not*

2.2 The Properties of Internet Content

Three elements appear to determine the value of Internet content: the content's *method of transmission*, its *positioning*, and its *reuse properties*. When launching an online cultural project, those in charge cannot always choose the means that will be used. Nevertheless, they should keep in mind that some add value to products, others have a neutral effect, and still others can be detrimental to value.

2.21 Methods of Transmission

The distributive model and the exchange model described in the previous section exist on the Internet in several forms.

Distribution remains the best-known communication model. It involves only a provider and users, who consume or consult a provider's content. Generally, users prefer certain content presented in an organized manner or initiate a search using a database of specific content. The content may be texts, images, or videos that can be consumed immediately or after downloading them. Distribution is the classic model for information dissemination used by newspapers, radio and television.

So far this model has not been successful in generating revenues on the Internet. Some niches, however, have been able to take advantage of Internet logic and have achieved a certain maturity and profitability (for example: financial news, pornography,[13] and scholarly journals).

With the *alert* system, instead of receiving content assembled by the distributor, the user is at the centre of the process. Each user defines his or her own profile by indicating the content he or she wants and searches several sources for relevant content, then gathers the content based on his or her own needs. For example, information from various sources is collected, then sent to the user by e-mail. In principle, the selected content better meets the expectations of the user, who defined the content's distribution parameters.

A *collective exchange network* can use direct exchange among users. A peer-to-peer network pools the power of thousands of computers to organize the distribution of files (music, videos, games, etc.). For example, Kazaa and Morpheus use this system. Using file sharing software, each user: defines the number of files he or she wishes to share; searches the files made available by other users; and downloads those files that interest him or her. The system works because users agree to redistribute part of what they obtain in exchange for downloading privileges. Each computer therefore becomes a point of consumption but also of data distribution. These exchanges would be difficult to organize on a one-to-one basis, but using a network—I receive from one member, I redistribute to another member—works well: there is always someone for whom the file I am offering has a high use value. The exchange value of the files is predetermined: each time I contribute to the network, I am entitled to withdraw the same amount from that network. The transaction is a form of bartering. In this case, the value of the network depends in large part on the number of network participants.

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[12] The Internet's ability to create bilateral relationships is so crucial that some see it as a business model in its own right, that of "infomediation," whereas we see several. See DESMARTEAUX, Robert H. *Évaluer les fondements stratégiques d'un modèle d'affaires à l'ère de la conjugaison des mondes réel et virtuel.* UQAM, Centre de recherche en gestion, Document 25-2001, p. 12. http://www.unites.uqam.ca/esgcrg/papers/2001/25-2001.pdf.

[13] The online pornography market is estimated at US$1 billion in the United States. O'DONNELL, Shawn. "An Economic Map of the Internet." Paper 162, Center for eBusiness at MIT, September 2002, pp. 10-13. http://ebusiness.mit.edu/research/papers/162_ODonnell_Map.pdf.

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One particular example of collective exchange networks is the community of interest, where members not only offer and exchange content, but do so with a well-defined common goal in mind. A community of interest brings together individuals who share specific objectives, which gives the exchange a very high use value for a specific topic. The information found on the network is generally produced by the members themselves, in response to the interventions of other members. It is therefore highly targeted and based on a connectivity approach, which is valuable in itself.[14]

These sites are vulnerable to competition, which significantly lowers their exchange value. However, as a rule,[15] their low production cost is counted on to achieve the break-even point with modest revenues.

Box: Cipher, or Banking on Ready-to-Run Communities

Cybercommunities and discussion forums are popular. Many if not most recent Web sites include discussion forums in order to generate traffic, loyalty, and free content. The effort, however, is often futile; deserted discussion forums are legion. Communities don't spring to life by decree.

Or do they? Cipher,[16] a project launched in early 2001 by the European Union, explores the idea of creating cybercommunities to promote the cultural heritage of various regions of Europe. Cipher's goal is to establish a how-to manual for communities, a systematic process for launching forums that will be used for a long time.

The experience is based on four forums created using record holdings provided by regional museums. A small group of interested users—from 40 to 50, all amateurs except the occasional professional acting as a reference—launch the discussion, explore the material, and react according to their knowledge of local culture. All behind closed doors, as it were: the public is not admitted.

Cipher studies the behaviour of all participants, describes the typical roles (the guru, the expert in a single field, the novice who is learning, the moderator, etc.), and develops the information technology tools the community feels it needs to grow. Eventually, around late 2003, Cipher plans to offer a ready-to-run community software, with all the information needed to select the first members and launch the site.

Clients will mainly be organizations involved in cultural heritage (museums, regional historical associations, etc.) or groups interested in promoting tourism through their region's cultural heritage. It is thought that the cost of operating these sites will be very low, which will make it easier to cover costs (chambers of commerce, municipalities, tourism associations, etc.).

Then there is *dialogue*, a direct person-to-person exchange that, on the Internet, occurs mainly through e-mail. The benefits of this communication method are, first, the user's ability to select both the person with whom he or she will communicate and the topic of conversation and, second, the very high level of interaction. Dialogue can have a substantial exchange value. If the person at the other end of the connection is a specialist, the effect of competition is less marked and the interaction may well have an exchange value. This practice is becoming increasingly common in the field of education, particularly for help with homework.

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[14] "The proliferation of online feedback mechanisms is already changing people's behavior in subtle but important ways. Anecdotal evidence suggests that people now increasingly rely on opinions posted on such systems in order to make a variety of decisions ranging from what movie to watch to what stocks to invest in (Guernsey, 2000). Only five years ago the same people would primarily base those decisions on advertisements or professional advice." DELLAROCAS, Chrysanthos. *Op. Cit.*, p. 3.

[15] Depending on the complexity of the network's tools: electronic discussion forums, e-mail discussion lists, etc.

[16] See http://www.cultivate-int.org/issue8/cipher/. Based on an interview with Paul Mulholland, one of the project's moderators, on May 7, 2003.

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Methods of Transmission	
Distributive	*The user accepts the content transmission.*
Alert	*The user acts on the content transmission.*
Collective exchange network	*The user is an active participant in the content transmission.*
Dialogue	*The user is at the centre of the content transmission.*

2.22 Positioning: Is the Internet the Aim?

The Internet is not an end in itself and money invested in it need not necessarily be justified by revenues generated on the Internet. In fact, several types of relations exist between the material world and the cyberworld, and Web sites generally use a judicious combination of those interactive elements when it comes to positioning.[17]

There are three types of positioning. First, a project can be strictly a Web project. Products and services, supposedly matched to specific niches, are offered to the public on the Web. That positioning is profitable if the product has an exchange value recognized in the material world and does not have to fight a tide of free cybercompetition. Online scholarly journals sold by subscription fall into this category.

Second positioning: the Web site promotes a good that is sold in the material world. For example, a museum may have a Web site that allows visitors to decide on their visit and reserve tickets. Here, value-related issues are determined entirely in the material world.

A third similar but not identical positioning consists of extending a product or service to the Web. To benefit most from the product, the user must obtain complementary products on the Web. The exchange value for these products may be determined by the product's use value, which justifies the purchase of complementary goods, and by the more or less strong competition from free substitutes. For example, the banking industry is offering more and more banking solutions to manage a client's portfolio of products at an institution. It is also the symbol of the convergence of television and the Web: television broadcasters offer value-added Web services as a complement to certain shows.[18]

[17] Some authors see a business model in the interaction between the material world and the cyberworld. In fact, that interaction takes several forms, which itself makes several models possible. See DESMARTEAUX, Robert H. *Évaluer les fondements stratégiques d'un modèle d'affaires à l'ère de la conjugaison des mondes réel et virtuel.* UQAM, Centre de recherche en gestion, Document 25-2001, p. 12. http://www.unites.uqam.ca/esgcrg/papers/2001/25-2001.pdf.

[18] This exceeds the context of positioning to promote the televised show.

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Positioning on the Internet	
Positioning specific to the Internet	*Example: sale of music over the Internet; artistic experience*
Positioning to promote a process that exists outside the Internet	*Example: promoting a cultural event*
Positioning to extend a process that exists outside the Internet	*Example: banking services on the Internet*

2.23 Reusable Content

Some goods and services can be used as the primary material for manufacturing other goods and services. This is true in the material world—think of the vast quantities of raw materials that industry needs—but also in the cultural world.

In this context, all online cultural content that can be reused entirely or partly for other purposes acquires additional value. However, the trend in online cultural products is to sell only a right of use. After consulting the work, the individual can neither redistribute it nor modify it. Potential for direct reuse is thus low, which gives the work no additional value.

The MPEG-4 video format will provide other alternatives because it allows content to be fragmented into separate objects. Some tracks may be subject to a different copyright system than others, so as to (possibly) allow for limited reuse. With MPEG-7, metadata will also be saved on separate tracks. We may see a copyright system where the purchaser can reuse some of those elements. It all depends on the strategy of the copyright holders.

Redistribution rights, however, are often used in an interesting way. In the games industry, in particular, demo software can generally be redistributed as long as the content is not modified. That method of promotion, which partly relies on peers, has proved its worth.

Nevertheless, some cultural products are assigned entirely when sold, with all their rights. The publishing and magazine industries, for example, make wide use of copyright-free images (or stock shots) on CD-ROM. These products may be expensive, but they are worth it in the eyes of the purchaser because they can be reused for all kinds of purposes.

Severability is another copyright characteristic that must be taken into account. The copyright to a song is usually held by at least two individuals: the person who wrote the lyrics and the person who wrote the music. Depending on the type of right or privileges granted in the transaction, the purchaser may have privileges that are a bit different for each component, for example, the right to modify the music but only the right to use the lyrics.

Works created from several sources—a documentary consisting partly of archival material, for example—may have fairly broad rights on the original material, but only the right to use the archival material. Or vice versa if the archival material is no longer under copyright and the documentary's author reserves all rights.

2.3 *Characteristics of Use*

Certain uses can be anticipated while others cannot. Whatever idea the designer of a Web project may hold, levels of interactivity and appropriation are hard to predict for every user. Interactivity and appropriation play on another strength that is valuable in its own right: connectivity. The greater the interactivity and appropriation, the more the user is connected, either with a machine or with other users.[19]

[19] Appendix 1: Other Determinants of Value on the Internet – 1. Types of Interaction

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2.31 Levels of Interactivity

There are three possible levels of interactivity in person-to-person, person-to-machine and machine-to-machine interactions. Each increases the number of exchanges between the two parties involved.

Levels of Interactivity	
non-interactivity	no or few exchanges
reactivity	the user is called upon to make certain decisions, but within a predetermined scope
activity	the user is called upon to take initiatives within an open framework, a discussion group, or a game with ever-changing conditions

2.32 Levels of Appropriation

There are four levels of appropriation for a service or a site that correspond to increasing intensity of interactivity: *adoption*, *involvement*, *reuse*, and *co-development*. In theory, that scale is independent of the type and level of interactivity.

The importance of the level of appropriation is in the value the user brings. The more involved the user, the greater the user's value to the site operator, either because the user's loyalty is profitable (payment of subscription for a paid site) or because the user's involvement enriches the site (creation of free content, human contact easier for new users)—or both.

Sites that are highly interactive and involve a high degree of appropriation are an interesting solution. These sites have valuable content and guaranteed traffic because they have many loyal users. However, it is important to remember that such sites are difficult to launch, they lend themselves poorly to institutional or for-profit projects, and, finally, an empty forum taints a project's credibility more than a static page full of information.

Adoption is the first level of appropriation. The user's profile is that of a loyal consumer. The user visits the site regularly, consumes what interests him or her, and generally does not explore advanced functions, if they exist. Adoption often marks a successful marketing effort. In fact, a Web site as a business brand must be on the shortlist, often limited to the five or six sites the Internet user frequents.

The second level of appropriation is *involvement*, when a passive user becomes an active user—a passage difficult to predict and produce, but crucial to a cybercommunity. In a community of interest, for example, the user will begin to make comments instead of simply reading the messages of other users. There are many reasons why a user becomes involved. In general, these hinge on the user's need to deepen his knowledge, sense of belonging, or need for acknowledgement. Such impulses must be strong enough to overcome the fear of participation. The provider can facilitate this step of appropriation by minimizing obstacles.

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Box: A Community that Supports Music[20]

Founded in 1969 by Pierre Boulez, Ircam is a musical institute associated with the Centre Pompidou. Research, creation and dissemination are the focus of activities at Ircam, which brings together scientists and musicians to encourage joint exploration of innovative artistic processes.

Ircam's forum is a community of music professionals who use software created by Ircam for composition, sound processing, and real-time interaction.

The community consists of researchers, teachers, composers, performers, sound engineers, and students of computer music. The forum currently has over 1300 users from all over the world. Over 3000 users have participated in the forum since its inception in 1993.

Forumnet, which was created for forum members, fosters exchange and information dissemination, offering discussion lists, downloadable updates, software or documentation posted by members, and links to interesting Web sites.

That department of Ircam is vital to the institute's dynamism; exchange communities like it foster consistency in research, creation, development, and teaching by strengthening ties among members the world over.

The third level of appropriation is *reuse*. At this stage, users make use of the tools on the Web site to create their own content, which they themselves add to the site. The user thus becomes a producer of content for his or her own needs. Allowing a service to be used as a tool has effects that service providers often fear. It is no longer as easy to know in advance how users will make use of the tool or what ideas they will put forward. When the provider or its sponsor insists that certain sensitive subjects be avoided and that full control over the product be retained, it is best not to venture there. But the cost may well be high in terms of innovation and the number of users.

Finally, *co-development* is the fourth and last level of appropriation. At this stage, users help to develop the product themselves, thus enriching and improving the initial online product. Taken to the extreme, this logic is the basis, in particular, for the open-source software industry, in which groups of volunteer programmers develop products that compete with those of the software industry.

Why do users decide to become so involved that they work long hours for free? Other than the conventional need to belong to a group and to be acknowledged by peers, as mentioned earlier, there are practical considerations. When a developer's project works well, his or her reputation is enhanced, especially if the developer convinces other programmers to join his or her venture. Many companies recruit these developers for key positions. Conversely, the company that employs the developer thus mutualizes the development costs.

The exchange value for co-development is extremely high. Had Linux been developed by a company, estimates suggest that it would have cost over $1 billion.[21] Volunteers develop new programming languages like PHP, whose success is now well known.

Levels of Appropriation	
Adoption	*The user frequents the Web site and consumes the site's content regularly.*
Involvement	*Above and beyond frequent visits, the user decides to participate by reacting to the available content, which creates content.*
Reuse	*The user decides to re-appropriate content to create his or her own content.*
Co-development	*The user actively participates in the creation process.*

[20] www.forum.ircam.fr

[21] WHEELER, David A. *More than a Gigabuck: Estimating GNU/Linux's Size.* Version 1.04, June 30, 2001. http://www.dwheeler.com/sloc/redhat71sloc.htm.

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2.34 Characteristics of and Changes in Use

New technology will inevitably result in permanent changes in Internet use. Greater bandwidth has paved the way for numerous uses of video, in particular. The same applies to advances in wireless technology: more and more users will access the Internet through a mobile terminal, which allows, in particular, the development of rapid exchanges like the successful short messaging service (SMS).

Users are increasingly interested in appropriation, and this will lead to Internet use that is very different from what we currently see. According to the report commissioned by DigiCult[22] on European heritage and cultural resources, simply making passive content available online will no longer be enough to attract and retain attention. Appropriation tools will also become increasingly sophisticated and will result in greater adoption by users.

David Bearman, Strategy and Research Director at AMICO,[23] remarks[24] to this effect that the evolution of 3D as a visualization tool will likely make 2D digital images of artefacts less interesting to users, in particular, as they become accustomed to handling the object in cyberspace. For major cultural collections, intelligent agents will help users locate the information they are seeking, then organize that information so that they can write their own story. Passive content will continue to have reference value, but consulting that content without an advanced appropriation tool will seem quite dreary in comparison.

2.4 Identifying Audiences

Successful Web projects usually target their audience. Even the most general portals are organized geographically (by country, by province) or culturally (La Francophonie, for example). Likewise, it is important to know who is being addressed and what market is being targeted.

2.41 The Audience

There are essentially two types of audiences: *professionals* and the *general public.*

Professionals can more easily justify user fees for a Web site. The general public, however, is undoubtedly less inclined to pay for services. Nevertheless, there is an intermediary class of amateurs who understand the basic professional jargon and who have a more specific interest in a given field than the general public. On the Internet, these non-professionals sometimes appropriate or decide to pay for a service initially reserved for a professional audience,[25] as the site often provides access to services that are hard to access conventionally.

Some Web sites have achieved the feat of bringing together all three types of clientele on a single site. Our research notably came across the case of Photo.net,[26] intended as much for highly qualified professional photographers as for novices. Culture, an area in which informed amateurs frequently outnumber professionals, appears ideal for this mixed approach, provided that each clientele finds what it is seeking.

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[22] The DigiCULT Report. *Technological Landscapes for Tomorrow's Cultural Economy – Unlocking the Value of Cultural Heritage.* Executive Summary. European Commission, DG Information Society, 2002, p. 8.

[23] Art Museum Image Consortium: www.amico.org.

[24] Ibid, p. 8.

[25] In France, when the Web site was launched for the RNM photo agency, which sells digital images from national museums, a number of non-professionals managed to get around the registration criteria to access the online consulting and sales service. Source: interview with Michel Richard of the RNM.

[26] http://www.Photo.net.

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2.42 Size of the Target Audience

A Web site must aim for a specific target audience, which can be very *narrow* or very *wide*. With a wide target audience, the advantage is a high number of potential clients, but whose interests may vary. As the target widens, competition becomes a more important factor. Moreover, that competition may be free, which drastically reduces the exchange value of any product or service offered. A niche target involves fewer users, but the specialization of the product or service and the needs it meets may result in less competition and thus a higher use value for its clients, where the Web site chooses the commercial path.

Education is a favoured target for heritage initiatives on the Web. If a project focuses on a specific program, it will reach fewer students but will have a higher exchange value with the institutions that offer the program.

2.43 Geography of Projects

The Internet is a medium that can connect the entire globe, yet can also meet local, regional and national needs. One advantage of a highly localized site is that a community can develop through the site based on themes inspired by shared experience, since cultural and geographical proximity facilitates exchange. An international community, on the contrary, is usually based on a more universal theme.

Theoretically, Web sites that are local, regional or national make it easier to adapt a product to a culture. In practice, other factors come into play. The local can indeed address the universal. Similarly, the Internet facilitates global coordination of any number of small local events. All sorts of shifts in localization are possible, from local to global and global to local.

The communities of the Cypher[27] project are based on fairly local issues: Irish archaeology, for example. But it is thought that these communities will attract users from all over the world once opened to the general public. After all, many people are interested in Irish culture. These local initiatives are therefore not only meant to be international in scope, but may potentially attract tourists to the region, notably to museums that invested in the project.[28]

The shift can take a somewhat different form. Mark Tribe, the man behind the Rhizome[29] art site, found that in 1995-1996, cyberart was emerging simultaneously in a number of European and North American cities. He decided he would give these small communities, which knew little or nothing about each other, the opportunity to share their experiences. As a result, a number of isolated local groups became aware that they were part of much broader movement.[30]

2.44 Interoperability

Several local sites can pool certain resources without losing their uniqueness or becoming a truly national action as a result. These systems are easier to establish when shared standards already exist: municipal or school libraries, regional museums, etc. Interoperability consists of creating standard protocols among the machines used to give citizens transparent multi-site access. In France, for example, twenty or so major reference libraries have linked their databases so that, with a single search, users can find out which library has the books they are looking for.[31]

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[27] See Box 1 at the end of section 2.21.

[28] Based on an interview given by Paul Mulholland on May 7, 2003. http://www.cultivate-int.org/issue8/cipher/.

[29] A detailed case study of Rhizome is found in section 4.12.

[30] Based on an interview given by Mark Tribe on April 30, 2003. http://www.rhizome.org.

[31] ORY-LAVOLLÉE, Bruno. *La diffusion numérique du patrimoine, dimension de la politique culturelle. Rapport à Mme la ministre de la Culture et de la Communication*, France, January 2002.

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One advantage of the system is that it promotes the holdings of lesser-known libraries that the user otherwise might not have thought to consult. If this chaining were an integral part of more regional and national systems, research—and thus access to online culture—would be made much easier.

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Chapter 3 – Funding Online Digital Content: Theoretical Elements

Chapter 2 identified sources of value on the Internet. A number of determinants may influence, to a lesser or greater degree, the use value of a product or service and, hopefully, its exchange value. Chapter 3 examines another issue: the exchange itself. When and how does exchange occur? When can exchange be commercial in nature? Those are but a few of the questions that will be addressed here.

3.1 The Commercial Internet: The Promise and the Reality

The concept of selling products or services over the Internet is relatively recent. The Internet was originally a technical project invented for military purposes. It was then further developed by university researchers as a platform for communication between academics. Its commercial vocation was only considered with the Web's sudden expansion in the mid-1990s. The Internet seemed to be a mass medium like television, radio or publishing. Hence the often failed attempts to apply the economic models of those industries. At the time it seemed that just being online and being able to reach countless consumers was enough to generate profit. In 2000-2001, the bubble of the high-tech stock market burst, sounding a call to order. Many businesses disappeared, leaving behind their version of the perfect Internet model. Other companies, which were more anchored in reality, remained in business or at least survived.

Which organizations survived? How are they faring? What economic models did they adopt? We will attempt to answer those questions by examining a number of models and case studies.

Based on the available documentation, no generic model has been developed specifically for online cultural projects. Without regard to the cultural context, the fact remains that every experience is unique and a systematic approach is hard to detect. What can be said, however, is that the most effective method is still that of trial and error.[32]

Nonetheless, that is not to say the question of models has not been addressed. In fact, practical experiences in some organizations, particularly successful experiences, have been well documented. Certain consistencies exist, and Internet business models are clearly not as different from general business models as one might think.

What about the cultural Internet? It is hard to come by a reference that would allow us to say it can be profitable. In the United States, rough figures place user revenue from content at US$1.3 billion to US$1.6 billion[33] in 2002. The portal market is said to represent $2 billion, and overall advertising revenues are slightly down at $5.5 billion.[34] It is important to note that revenues from paid content on the Internet are growing exponentially.

It is also interesting to note that, according to the Online Publishers Association,[35] the fastest growing paid content on the Internet in 2002 was dating services and greeting card sales. The first service is based on exchange, as is the second, although the latter involves the sale of distributed content. Entertainment and

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[32] BORRUS, Amy. "Someone Has to Pay the Freight" in *Business Week*, New York, March 26, 2001, pp. 134-136.

[33] This $1.4 billion does not account for "pornographic" content; by far the largest source of revenue is online dating services, followed by financial information, then entertainment/lifestyle. Online Paid Content: U.S. Market Spending Report, Q4 and FY2002, Online Publishers Association, March 2003.
Of this $1.6 billion, "adult" content is estimated to account for about $1 billion. Financial information and paid online music account for the lion's share of the remaining $600 million. From O'DONNELL, Shawn. "An Economic Map of the Internet." Paper 162, Center for eBusiness at MIT, September 2002, pp. 10-13. http://ebusiness.mit.edu/research/papers/162_ODonnell_Map.pdf.

[34] Ibid.

[35] Online Paid Content: U.S. Market Spending Report, Q4 and FY2002, Online Publishers Association, March 2003.

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online games are growing steadily and it is estimated that these areas will continue to expand and will account for more and more of paid content on the Internet.

Box: Entropy8zuper.org: Cyberart and the Paid Experience?

In 1999, two artists based in Holland, Auriea Harvey and Michaël Samyn, worked together to create the independent Web site Entropy8zuper.org.[36] One of their goals was to help their art to survive by selling "artistic experiences" online without an intermediary. The site's major work is called *Skinonskinonskin*: Internet users must pay a fee to experience this unique multimedia work. The site offers several pay-per-view packages from $10 to $100 to access the work for a period ranging from three days to a lifetime.

Other than fans, the Web site attracted a fair amount of press coverage and, for a while, users were plentiful, allowing them to make "quite a bit of money," as Michaël Samyn put it. Then the venture naturally ran out of steam; *Skinonskinonskin* was no longer a big seller. A real marketing strategy was necessary, but the artists rejected the idea: it was not their profession. "We live in a society where the only skill that gets rewarded is public relations," they said. The Internet is not always an alternative to intermediaries! This example, though isolated, shows those who wish to believe it that an artistic project can sell on the Internet, if one wishes to give the general public that option. This was shown to be possible the day Entropy8zuper sold its first experience. Sustaining the project may be asking too much of the artist, or at least beyond his or her artistic expression.

Somewhere between the permanent and the ephemeral, a work designed for viewing with Netscape 4 and a 56K modem is ill suited for viewing on a modern browser with high-speed Internet. Is it worth conserving? Artists are leaving that matter to historians, curators and archivists. Their focus is on creating, not conserving.[37]

3.2 Three Major Classes of Economic Models: Who Pays, and Why?

There are three possible sources of revenue: the client, the provider, or a third party. These three cases accurately describe how the Internet works: in particular they explain how and why so many services can be free. Those free services, of course, come at a price: someone, somewhere, is paying to produce and disseminate that content.

3.21 When the Client Pays

The most conventional model is that in which the client pays for what he or she purchases or rents. The transaction involves the passing of property, where a good changes hands: the classic forms of sale, competitive bidding, and lease with purchase option are variants of that type of transaction. This classic model has not worked as well as expected on the Internet. The transaction may also concern a right of use, where a good is used without any change in ownership. Payment of a lump sum entitles the payer to unlimited use or to limited use determined by a specific quantity (of time, disk space, bandwidth or pages), as the case may be. Alternatively, consumption may also be paid per unit.

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[36] Based on an interview conducted by e-mail with Auriea Harvey and Michaël Samyn on June 11, 2003.

[37] At the time of writing this report, the Walker Art Center in Minneapolis had just closed its New Media Department—the reference in the United States in the field of cyberart with its Digital Art Study collection and the online Gallery 9—and dismissed curator and commissioner Steve Dietz, an undisputed pioneer in the field. Reaction was swift from specialists like Christiane Paul of the Whitney Museum, who insisted on the long-term economic risk for the institution: [Translation] "*Contemporary art museums must reflect the evolving arts. They have no choice but to take an interest in new media, which are increasingly important. If they don't do it now, they will have to spend millions down the road in order to catch up.*" www.transfert.net, culture 3/06/2003.

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3.22 When the Provider Pays

Sometimes the person or organization supplying the good or service covers the cost. This system is less illogical than it first seems and is in fact well suited to the Internet, where it remains a prevalent funding method. From the provider's perspective, this model makes it possible to achieve several objectives. The most recognized objective is to facilitate sales: a kind of *shop window* model. The press media offer part of their content for free, using the Web to promote the hard copy version of the newspaper or a subscription to other Web services or content. It consists of offering something that leads to other sales, for example, a free telephone for subscribing to the network. The provider can use it to promote a product or to secure the loyalty of its customers. The provider may also be a government whose goal is promotion and/or to provide a *public service*.

3.23 When a Third Party Pays

With this formula, a third party covers the cost. The payment may be in the form of *advertising*, *sponsorship*, *patronage*, or a *grant*. With advertising and sponsorship, the third-party payer attempts to increase its notoriety or the notoriety of one of its products, whether available on the Web or not. These are the sales that will clinch the financial arrangement.

With grants, patronage and *philanthropy*, expenses are primarily justified by the cause that is being supported and the payer's desire to advance that cause—although in some countries payers may be motivated by the financial incentives of philanthropy.

In the case of *portals*, one of two approaches usually applies:

- a third party pays for advertising space;
- a producer/third party pays to include its own content for promotional purposes.

3.3 Business Strategies: Who Does What and For Whom?

Relatively little attention has been paid to the Internet business strategies examined here. This is rather surprising, given how much talk there is about how the Internet profoundly changes traditional models. Nevertheless, such strategies are essential because they specify where the business positions itself on the value chain in order to make money. The issue is no longer to determine who is paying, but what service is being paid for.

One of the most recent studies on this subject identifies 35 Internet business models that are variants on nine major classes of models.[38] In most of these models, expenses are covered by the client. But there are indeed examples of expenses being covered by a third party or by the provider. Some models are simple, others complex.

3.31 The Brokerage Model

The role of a broker is to bring providers closer to their clients and to facilitate transactions in return for a set margin or payment. Transactions may be business-to-business, business-to-consumer, or even consumer-to-consumer in the case of auction sites. With this model, costs are generally covered by the client and sometimes by the provider.

3.32 The Advertising Model

This model is based on the world of mass media. The provider combines its content—which is not necessarily free and not necessarily created by that provider—with advertising in the form of banners or

[38] RAPPA, Michael. *Business Models on the Web*. 2003. http://digitalenterprise.org/models/models.html.

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pop-up windows. This model, which is funded by a third party, works when traffic on the site is high or when viewers are highly specialized.[39]

3.33 The Infomediary Model

Businesses that use this model collect and disseminate strategic data on consumers and markets. They research audiences, provide advertising for major dissemination networks, gauge the impact of that advertising, offer customer loyalty programs, and so on. Professional clients pay for that information in the hope of profiting from it.

3.34 The Merchant Model

The merchant model is undoubtedly the most classic: retailers and wholesalers maintain an online presence with the aim of selling to their customers. Businesses involved in this type of model often have a chain of stores in the material world ("click and mortar"), though not always. For others, the Web is simply an extension of the catalogue sales concept ("click and buy").

3.35 The Manufacturer (Direct) Model

More and more manufacturers are selling their products directly on the Web to sidestep costly intermediaries in the distribution network. The product can then be sold at a better price with more personalized customer service. Several brands of computers are sold this way. Some of these sites also offer "advertising entertainment" to polish their image.

3.36 The Affiliate Model

This model is similar to the advertising model, except that the Web site and the advertiser have a long-term relationship based on performance. The affiliate provides a link to the advertiser's Web site. If the link generates sales for the advertiser, the affiliate is compensated with a percentage of that sale. The model is performance-based: without sales, there is no cost to the advertiser. For example, Artprice,[40] the leader in the online art market with a database of over 306,000 artists and works ranging from paintings to multimedia art, makes wide use of the affiliate model. Artprice pays a commission of 20% to 50% on purchases by visitors from affiliate sites.

3.37 The Community Model

The fundamental strength of this model is that users invest time, energy and emotion in a common project. This type of Web site may rely on client contributions in the form of subscription, voluntary contributions (the member sets the price), fundraising, or ancillary products.

3.38 The Subscription Model

This is another classic model, where the user pays up-front for access to a service for a predetermined period of time. This method of payment is by far the most used for online content.[41] Billing occurs as

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[39] Currently viewed with great scepticism, this model will become increasingly important. With the number of Internet users growing and the market gradually becoming segmented, the conditions for its success are falling into place. Without covering all the costs, advertising could play a relatively important role on the Internet in the next five to ten years. See O'DONNELL, Shawn. "An Economic Map of the Internet." Paper 162, Center for eBusiness at MIT, September 2002, pp. 5-6.
http://ebusiness.mit.edu/research/papers/162_ODonnell_Map.pdf.

[40] www.artprice.com

[41] Yearly subscription is reported to be the most widespread billing method on the Internet in the United States, representing 41% of revenues in 2002. The retention rate is high: 72% of expired subscriptions are

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agreed, whether or not the user has used the service. Many sites offer a combination of free basic services and more extensive services by subscription. This model is by far the most frequently used for paid content today.

3.39 The Utility Model

This model is based on the user's actual use of the service measured in time, bandwidth, viewed or reused elements, etc. For example, Internet access is billed by the minute rather than by subscription. Some sites sell access to their content in advance using predefined units (such as a certain number of displayed pages).[42] Micropayment seems to have been somewhat abandoned, notably due to transaction costs, but may be an interesting alternative in the cultural sector if the billing method were to evolve.[43]

3.4 Understanding Economic Models Based on Business Models

None of these business models is unique to the Internet: all have been put to the test in the material world. However, adapting them to the Internet required a sound understanding of strategies on the Internet, as over-the-Net sales run counter to certain principles of classical economy. The cost to the client for dematerialized content must be justified. On the Internet, models are frequently combined to compensate for the difficulty of generating long-term revenues. The offering must be complex and allow for various methods.

Table: Summary of Online Content Models Based on Whether or Not the User Is the Payer

The table below provides examples of options based on the models in the last two sections:

Content	Strategies
Paid	*subscription, community**
	utility
Free (paid by third party)	*community**
	advertising, affiliate
	grants, patronage, sponsorship, philanthropy
Free (paid by provider)	*shop window*
	public service
	*community**

* The community model may be associated with a fee for access (for example, voluntary subscription). The fee may also be paid by a third party or the provider.

3.5 Cost Reduction Strategies

Another way to increase margins is to reduce operating costs. Rather than saving on product design per se, costs can be cut on product maintenance and updates or by mutualizing production costs. Most of the

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renewed. Online Publishers Association. *Online Paid Content: U.S. Market Spending Report*. March 2003, p. 4. http://www.online-publishers.org/opa_paid_content_report_030403.pdf.

[42] Some economists believe this model to be more fragile than the subscription model and likely to lead to disastrous price wars. It also forces users to determine the use value of the service every time they purchase, which invariably reduces consumption. See FISHBURN, Peter C. and ODLYZKO, Andrew M. "Fixed Fee Versus Unit Pricing for Information Goods: Competition, Equilibria and Price Wars." AT&T Labs – Research, 1997. http://www.dtc.umn.edu/~ODLYZKO/doc/price.war.doc.

[43] For example, w-HA software solutions, http://www.w-ha.com.

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profitable projects on the Internet opt for a cost reduction approach, since the medium is subject to numerous technological and technical constraints.[44]

Well-considered choices in technology may help reduce costs. Technology ages quickly and if a site is meant to last a long time, ways to counter obsolescence must be anticipated from the outset.[45] In this area, prevention costs significantly less than do changes. Likewise, some ways of managing changes to Web sites are less costly than others.

Building on the potential synergies of several sites to achieve economies of scale is one element to consider. Several potential users can work together to program custom software or a shared portal, which reduces barriers to market entry. Operating expenses can also be mutualized. Bandwidth, for example, can be purchased in large blocks at fixed prices to meet the requirements of several sites.

3.6 Web Content: Free or Paid?

One of the greatest challenges of any organization on the Internet is to dispel the assumption that online content is free. A 2002 survey found that 70% of American Internet users agreed with the following statement: I don't know why anyone would pay for Web content.[46]

3.61 Will the Web Become a Paid Medium?

It was long held that free online content would be funded by advertising revenues, as with television and radio. But as early as 1998, experts were forecasting the failure of that strategy.[47] The facts supported their statements. There is still advertising on the Web, but it has not become the El Dorado it was expected to be. The utopian concept of a cybermarket accessible to all or a kind of democratic bazaar[48] is on its last legs. The survival of non-subsidized online content providers will depend on their ability to charge, at least partly, some of their users.

In the last two years, paid online content has become more frequent. From 2001 to 2002, revenues from paid content shot up by 95% in the United States,[49] which augurs well in terms of user response to the availability of such content. Beyond the characteristics specific to the Web, as discussed in Chapter 2, it appears that supply is adjusting on the Internet and that content is increasingly adapting. This suggests that growth will be constant over the next few years.[50]

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[44] Chapter 5 deals in greater detail with technological and technical constraints.

[45] "A second common challenge identified by the respondents is related to the rapidly changing environment for digital products. Challenges generated by constantly changing technical standards and norms were most frequently noted in this regard. Others noted challenges are generated by changing political priorities, *potentially changing copyright regulations and ongoing changes in Internet technology, the latter of which could affect the shelf life of current digital products.*" From WALL COMMUNICATIONS. *A Study of Business Models Sustaining the Development of Digital Cultural Content*. Ottawa, June 2002. p. 45. http://www.wallcom.ca/Documents/DigitalCultContent.doc.

[46] SANDBERG, J. "On-Line: Web Magazines' New Battle Cry: Charge!" *The Wall Street Journal*, New York, February 26, 1998, p. 6.

[47] Ibid.

[48] BORRUS, A. *Op. Cit.* pp. 134-136.

[49] Other than the sale of pornography and software: Online Paid Content: U.S. Market Spending Report, Q4 and FY2002, Online Publishers Association, March 2003.

[50] Jupiter Research estimates that in 2007, the market for paid Web content in the United States was US$5.4 billion, growing at a constant 20% per year. Advertising revenues should reach US$14 billion. Announcement at March 24, 2003, Online Media Conference: http://www.jupiterevents.com/jomc/spring03/index.html.

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3.62 Online Culture: Free or Paid?

In our discussion of business models on the Web, we identified different ways of making an online cultural or heritage project profitable, and thus sustainable. Far from theorization, the process consists of adapting such projects to the realities of the cultural world via a medium still widely perceived as being free. No niche of the cultural Web has achieved any real commercial success, other than occasionally the educational sector.

However, beyond heritage conservation, which has always been supported by government or philanthropy organizations, cultural industries such as film, radio, publishing, and the visual arts are largely funded through a support system for creation, production and dissemination without having to meet any real obligations to achieve a return on their work. Culture is not always a sell compared with what it costs to produce, and only a few projects ever meet with any real commercial success.

Moreover, because the Web may be the partial digital reflection of the culture and heritage milieu as a whole, defining the limits of support is difficult. Reference, experience, promotion, presence, access, popularization, entertainment—on the Web, these are the elements needed to develop the medium's cultural role.

For example, a study of the online presence of public institutions (museums, libraries, etc.) responsible for promoting culture and heritage in Europe concluded that culture and heritage on the Web would remain basically free. In fact, it is expected that by 2006, at least 85% of funding for institutional Web sites will still be public. The remaining funds will be generated by e-store sales and licenses for use of certain content.[51]

3.7 Toward A Mixed Model

All the above regarding revenue strategies, cost reduction approaches, business models, and public service should not be seen as a series of mutually exclusive methods. Quite the contrary. Sites that cover their costs, and many do, merrily combine revenue sources and cost reduction strategies. That is also the best way to compare and test various strategies.

As can be seen in the case studies further on, a paid site often turns a profit by charging users in two or three ways. Better yet, they often do so by providing services in the material world or by selling physical products. The user-pay approach is often combined with other techniques like advertising and sponsorship.

Access to content can be sold directly to users on the Web provided the medium is properly understood. Content providers market products that would not be as practical and easy to update in an analogue or physical form (book or CD-ROM). The *Wall Street Journal* is the perfect example. With the maturity it has earned on the Net and the characteristics of the information it delivers, the newspaper's online version manages to sell paid subscriptions to hard copy subscribers. It is a "pure player"[52] in the e-publishing sector though all its content is available in hard copy. In fact, one reason for its profitability is the fact that the cost of the content is already covered by the newspaper's hard copy.

Successful Web sites often use a mixed strategy, thus benefiting optimally from all the possibilities that may suit the organization's mission and values. Becoming profitable does not entail giving up elements of one's mission, but rather identifying the revenue sources made possible by that mission. The subsidized public sector also takes advantage of that mixed approach. For example, using private subcontractors,

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[51] The DigiCULT Report. *Technological Landscapes for Tomorrow's Cultural Economy – Unlocking the Value of Cultural Heritage.* Executive Summary. January 2002.

[52] Web culture business, as opposed to conventional media, which have difficulty adapting to the Web.

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whether for-profit or not-for-profit, may be part of a cost reduction strategy that frees up funds for other projects.[53] Some services that do not fall under the public service model can also be chargeable.

3.8 Imperatives for Any Web-Based Business Model

Regardless of the approach and the many determinants to consider, the challenge is still to convert use value to exchange value. In a classical economy, that which is abundant and available to everyone—air, for instance—has no exchange value. That does not mean it has no use value; without air, we would die within minutes. On the Internet, information can be useful, even vital, but that does not mean it is easy to assign it a monetary value. Information is overabundant, tends to be reproduced, and is not destroyed after consumption. It is a non-exclusive good—one might as well say that in most cases, its exchange value tends toward zero, whatever its use value may be.[54]

For the law of supply and demand to work, value must be measured by the yardstick of a scarce resource. Scarcity does indeed exist on the Internet and is even the direct result of overabundant information. What is scarce is public *attention* and the ability to capture it, retain it, and exchange it. Therein lies a true source of value on the Internet.

That is the wager won by a number of pioneers in their respective fields. Amazon.com has become the undisputed reference in online book sales, since it was the first to attract the attention of Internet users. It has earned their *trust*.

3.81 The Attention Economy

Attention is a scarce resource. Capturing the attention of an audience is no easy task. The vast field of marketing and communication focuses entirely on drawing the public's attention to one product or service rather than another. Web sites are not immune to that necessity. They must attract and retain the attention of their target audiences. Once that attention is captured, it can be put to use.

How can the attention of an audience be captured? In addition to conventional marketing strategies for generating traffic, creating loyalty must also become a focus.[55] Customer loyalty programs, personalized products or services, e-newsletters[56] and cybercommunities are all proven ways of keeping audience attention over the long term.[57]

What to do with a user's attention once captured? First, the user can be made to return, especially to a Web site whose information is updated frequently. Second, in the longer term, the user can be convinced that the site meets his or her needs better than any other. From that point on, the user can be encouraged to participate, in terms of either time (participation in forums, etc.) or money (purchase of ancillary products or subscriptions).

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[53] Smith, A. *Paying Our Way*. Council on Library and Information Resources, Washington, D.C., January-February 2001. http://www.clir.org/pubs/issues/issues19.html#paying.

[54] GOLDHABER, Michael H. "The Attention Economy and the Net" in *First Monday*, 1997. http://www.firstmonday.dk/issues/issue2_4/goldhaber/index.html.

[55] If every site offered the same loyalty program (Air Miles, for example), the effect on customer loyalty would be minimal. It is better to create specific loyalty programs for each site. See DE FIGUEIRO, *Op. Cit.*, p. 5.

[56] This is a highly popular approach. In 2002, 30% of cultural Web sites in France (private and public sectors combined) offered subscriptions to e-newsletters. ERNST&YOUNG, *Les Acteurs culturels et Internet : Résultats de l'étude e-Culture 2002*, Paris, 2002.

[57] ZOTT, C. and DONLEVY, J.J., *Strategies for Value Creation in E-Commerce: Best Practice in Europe*. INSEAD R&D, 2000, p. 13. http://www.insead.edu/entrepreneurship/ecommerce.pdf.

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But that's not all. Attention is transferable. If a site has a considerable audience, the attention of Internet users can be drawn to another site, product or service. Attention transferred—or lent, as it were—in this way may be the object of a financial transaction. The advertising and affiliate models work this way.

Why is connectivity among individuals so powerful? Because its sole aim is to capture attention. Telephones, faxes and e-mail are not always as productive as expected. Their use is usually limited to capturing the attention of key individuals within a business.[58] Attention is created and transferred among individuals.

Because resources are plentiful, originality and reinvention are crucial. The more a good, or a series of comparable goods, is consumed, the weaker its marginal utility. A Web site that does what every other site is doing and always presents the same things leads to *boredom*—the complete opposite of attention.[59]

3.82 Trust: A Source of Value

Attention can be obtained quickly in a number of ways, ranging from word of mouth and well-orchestrated marketing to scandal, but trust and reputation can only be established slowly. This concept is often associated with a name or a brand, which builds credibility over the years. Note that, incidentally, trust has always been an important element in business[60] and the Internet is not a medium that inspires trust out of hand. Face-to-face contact is missing and everyone knows how easy it is for a fraudulent business to appear credible on the Internet. This puts small, lesser-known sites at a disadvantage.[61]

The main advantage of trust, like attention, is that it is partly transferable. A business or designer with a solid reputation in the material world can play that card when launching a Web project.[62] An unknown business that launches an Internet project can also benefit from that kind of trust by partnering with a reputable company or brand, which serves as its moral guarantor.[63]

Portals rely partly on attention (by attracting a high number of Internet users) but also on trust. The rationale is that a business with a reputation to uphold will not recommend just anything. If two organizations are associated, one lesser known but the other reputed to be trustworthy, the transfer effect is even greater. Consumers assume that both partners share the same values.

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[58] Ibid.

[59] GHOSH, Rishab Aiyer. "Economics Is Dead. Long Live Economics! A Commentary on Michael Goldhaber's *The Attention Economy*" in *First Monday*, 1997. http://www.firstmonday.dk/issues/issue2_5/ghosh/.

[60] Perhaps even more so today. With the Internet, consumers are better informed than ever before and are not gullible. "Evidence is building that the paradigm of marketing is changing from the push strategies suited to the last 50 years of mass media to trust-based strategies that are essential in a time of information empowerment." URBAN, Glen L. *The Trust Imperative.* Paper 175, Center for eBusiness at MIT, March 2003, pp.8-9. http://ebusiness.mit.edu/research/papers/175_Urban_Trust.pdf.

[61] MADNICK, Stuart and SIEGEL, Michael. "Seizing the Opportunity: Exploiting Web Aggregation," Paper 144, Center for eBusiness at MIT, December 2001, p. 8. http://ebusiness.mit.edu/research/papers/144%20Madnick,Aggregator.pdf.

[62] The *Wall Street Journal* was one of the first newspapers to require a paid subscription in 1996; even today it remains one of the few cases where the approach has been profitable (revenue estimated at US$26 million in 2003). When it comes to financial information, its name inspires confidence. Its subscribers are also used to paying for the services they use.

[63] MADNICK, Stuart and SIEGEL, Michael. *Op. Cit.*, p. 8.

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Scepticism remains high on the Internet, since users do not always know how credible information from lesser-known sources may be.[64] The Web site of an organization that is well regarded off the Internet will be looked upon favourably. Sites like that of the Louvre or the *Wall Street Journal* have no need to establish their credibility: they simply have to provide the quality expected of them. It is important to remember that trust is crucial to any commercial transaction,[65] and is even the basis for such transactions.

3.9 Organizational Impact of the Attention Economy

Some cultural organizations are ill prepared to offer the diverse products with a high degree of added value that can carve out a place in the attention economy described above. One notable example is a cultural organization operating in a relatively sheltered physical environment (rare specialty, unique regional status, etc.) that must now face more global competition on the Internet.

Such organizations may be sorely tempted to use information technology as an engine for organizational change. Yet introducing information technology processes alone rarely results in the expected productivity gains. That is the Solow Paradox:[66] "You can see the computer age everywhere these days, except in the productivity statistics."

In fact, the benefits of information technology materialize only when a reorganization occurs. External expertise is often necessary. Even under these conditions, it's not always easy to build bridges between the material and digital worlds.[67] The Internet will eventually affect the work of every employee, not just those in some "Internet department."

Integrating information technology involves more than just digitizing works: it must be part of an overall strategy based on the mission of the business. In that context, technology is a means, not an end, since digitization alone yields nothing and its cost may be hard to justify unless it supports at least one major institutional project that has been clearly defined. Instead, it should be considered a necessary transition to a given level of service or the way to reach a specific new cultural audience.[68]

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[64] "The issue of trust, particularly consumers' perception of the lack of security in e-commerce, is one of the largest impediments to e-commerce growth, especially in Europe, where it has been cited as one of the main reasons consumers do not purchase on-line." ZOTT, C. and DONLEVY, J.J., *Op. Cit.*, p. 16. http://www.insead.edu/entrepreneurship/ecommerce.pdf.

[65] Particularly when faced with Internet users' mistrust of e-payment systems.

[66] SOLOW, Robert M. "We'd Better Watch Out" in *New York Times Book Review*, 1987. Robert Solow, an economist at MIT, is also a Nobel laureate in his field.

[67] "By becoming hybrid institutions, cultural organisations struggle to find the balance between the analogue and digital worlds." The DigiCULT Report. *Technological Landscapes for Tomorrow's Cultural Economy – Unlocking the Value of Cultural Heritage*. Executive Summary. European Commission, DG Information Society, January 2002, p. 39.

[68] KENNEY, Anne R. "Mainstreaming Digitization into the Mission of Cultural Repositories," in *Collections, Content, and the Web*. Washington, D.C.: Council on Library and Information Resources, 2000, p. 14. http://www.clir.org/pubs/reports/pub88/pub88.pdf.

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Chapter 4 – Ensuring the Economic Sustainability of Online Cultural Projects: Far from Standard Models

Chapter 2 listed the various determinants of a product's value on the Internet. Chapter 3 went on to identify potential clients and suggest points on the value chain where revenues can be generated. Finally, Chapter 4 presents several case studies, which lead us to a series of promising trends that may support the sustainability of online cultural content initiatives today.

4.1 Case Studies

The case studies that follow do not pretend to be exhaustive, nor do they pretend to be particularly brilliant successes or even examples of profitable businesses. Rather, they represent several ways of addressing the issue of quality cultural presence on the Internet. Some initiatives are highly ambitious and others fairly modest. The Internet reflects that diversity and our goal was to emphasize that fact. Every case is presented in the same way. First we describe the site, its history, its originality, and its traffic. Then the site is described based on the determinants of Chapter 2 to determine which leverage it uses most. Finally, the site is described in financial terms, with clear reference to the business models discussed in Chapter 3.

Case	Description
Two communities	*A cyberart and a photography community considered to be the essential references: Rhizome.org and Photo.net*
Two museums	*Two quite different perspectives on two of the world's major museums: the Metropolitan Museum of Art and the Louvre*
A publisher specializing in education	*One of Quebec's most experienced educational publishers: Educal, a mathematics project by Cogniscience* *Note: Although the project is science-related rather than cultural, it was selected for its unique contribution to the consideration of a cultural Web that is educational in nature*
A television production company	*A small producer in Quebec that has shown, in a specific niche, "the culture of mathematics," the relevance of convergence, and continuity between the media of Internet and television: Cmathématiques by Téléfiction*
Two management networks	*One organization (SCRAN) manages heritage holdings and the other (Fathom), learning material, notably in the areas of culture and heritage* *Note: Although Fathom ceased operating in late 2002, we present its business model because of its originality and to understand what went wrong*

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4.11 Photo.net

Description Photo.net,[69] probably the world's best known and most frequently visited Web site on photography, was created in the strangest way. In 1993, Philip Greenspun, an amateur photographer and doctoral student in information technology at Boston's MIT, set off on a journey across North America to grieve the loss of his dog. The account of his trip, and the accompanying pictures, resembled the blogs that are so popular today. Visitors to the site could comment on the traveller's adventures, which was rare on the Web at the time. Some discussions concerned photography. When Philip Greenspun returned home, he started several high-tech firms, including Ars Digita, which made millions of dollars by adapting open-source software to the needs of various clients.

That software was for cybercommunities. In 1996, Photo.net, to which a number of discussion forums had been added, became a test bed for Ars Digita programmers. By 1999, business at the parent company kept Philip Greenspun so busy that he transferred Photo.net to a separate company (Luminal Path), of which he owned 50%; three financial partners shared the rest. The company now has one full-time employee (Brian Mottershead), a part-time consultant (Bob Atkins), and about fifty volunteer moderators. Operating entirely as a community of interest, the Web site has 135,000 registered members from world-renowned photographers to novices. The server responds to 7 million requests per day for a total of 34 million pages displayed every month. On average users spend 11 minutes on the site per visit. The site has three main components. The discussion forums (a total of thirty) contain about 780,000 messages from 60,000 different members, with 40,000 new messages per month, of which 34,000 are archived for posterity. The Gallery of images contains 534,000 photos contributed by 36,000 users; including those that have been erased, the site has presented roughly 1.5 million images since it was created, and as many comments on photos or editorial elements.

Determinants How to describe Photo.net? In terms of form, the Web site fosters exchange among users in the form of a fully developed community of interest. The content is not reusable as such, but the "tricks of the trade" learned on the site are reused. In terms of use, the site fosters very strong person-to-person interaction and half the users appear to have appropriated the site at the active participation level. The audiences are defined fairly broadly. Geographically, the project initially supported the relatively local sales of Ars Digita. The current company, Luminal Path, has affiliation contracts only with American companies and is not yet properly equipped to handle voluntary subscriptions from other countries. The site's identity is therefore primarily American, although the site is rapidly becoming internationalized. Amateur and professional photographers represent a relatively large niche, and as such, the ability to combine the interests of the two groups is worthy of mention.

The Web site was promoted by word of mouth. The administrator admits that it is neither the best-looking nor the most advanced photography site, but the fact of having been on the market first and of having developed a vast body of knowledge in photography techniques and aesthetics, which he describes as a collaborative online encyclopaedia, gives the site credibility. He also feels a responsibility to maintain access to that unique collection.

Funding The organization's structure is still that of a for-profit company, although it has not turned a profit since 1999. The administrator admits that a not-for-profit company would better suit the members' vision, but states that likely will not happen until the original investors recoup their investment. In spring 2002, Photo.net faced the greatest crisis in its history. Its revenues barely covered the cost of its bandwidth (about US$3,000 per month). There was only one source of revenue: a commission of 1% to 10% on purchases made by members at affiliated photography equipment stores.

Since these revenues were unlikely to increase and the site was vulnerable to the least crisis, several measures were taken to reduce costs and increase revenues. First, the privileges of a tiny group of very active users were suspended until they paid a voluntary yearly contribution of US$25. This resolved some misuse of bandwidth. More significantly, revenues rose as the result of an advertising banner system in

[69] http://www.Photo.net. From an interview with Brian Mottershead, site administrator, on May 1, 2003.

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April 2003 and more vigorous promotion of voluntary membership, which ultimately provides few advantages. In April 2003, revenues reached close to US$10,000, of which US$4,000 was spent on bandwidth.

In short, under the new business plan, 40% of revenues are generated by clients through a voluntary yearly subscription and 60% by third parties through advertising and affiliation. While modest, these funds have allowed Luminal Path to modernize its equipment and resume paying its sole employee, illustrating how relatively inexpensive it can be for large communities to operate.

4.12 Rhizome.org

Description Mark Tribe, the man behind Rhizome.org,[70] has been interested in the Web since 1993. He immediately understood that the medium would have a major cultural impact. While living in Berlin in 1996, he realized he wasn't the only one interested in cyberart and new media: all over Europe, small, isolated artistic communities were exploring the same concepts. He launched Rhizome.org in the hope of linking these isolated initiatives. Initially the site focussed on dialogue. But as of 1998, art began to be archived on the site. Part of those archives are virtual, containing a few explanations and a link to a digital work of art running on a server somewhere in the world. The other part actually consists of software entrusted to Mark Tribe and stored on the Rhizome.org server.

Rhizome.org currently hosts about 1,000 works of cyberart with 25 new works added every month. Links to objects stored on other servers provide access to about 3,000 other works. In December 2002, the Web site had 23,000 registered members, 15,000 of whom were actually active. The site also had many moderators, publishers and users with special privileges, including the members' function. That filter function seems to be more sophisticated than that of most community sites. But quality pays, as the site also attracts museum curators and has resulted in the careers of some artists taking off.

Rhizome is interested in the long-term conservation of digital works and was one of the first to draw attention to the issue. The site received a small government subsidy to study metadata, but its lack of resources hampers its ambitions in that respect.

Determinants In terms of content, Rhizome.org is a community of interest that fosters exchange among members but also the distribution of works in their original form—a more original approach. Content is not reusable as such and it is difficult to determine the degree to which the works displayed inspire other artists who are members of the site. In terms of use, both person-to-person interaction (through conversation) and person-to-machine interaction (through the works) are fostered. The site encourages members to be active, mainly at the active participation level. In terms of the audience, action was initially multi-local but has become truly international. The cyberart niche is narrow and the site is addressed more to a professional audience (artists, curators, etc.) than to amateurs, although it does allow a wider audience to develop an interest in the cyberart culture. The site's positioning is based on the Internet rather than the material world, which is logical considering the product. It is designed for high-speed rather than low-speed access. The site was promoted mainly in the material world through contra-account advertising with specialty magazines and Mark Tribe's participation in festivals and conferences.

Funding Rhizome.org is a not-for-profit organization, which has allowed it to develop a generous network of donors, generally philanthropy organizations. Although the budget reached US$500,000 a few years ago, the 2003 budget is no more than US$300,000. Rhizome.org also changed from a voluntary to a compulsory subscription system for members.

An in-house survey suggested that 50% of members would agree to pay a minimum yearly contribution of $5. In the end only 20% of members did so. In early 2003 membership dropped from 15,000 to about 2,700 members, with revenues of less than US$10,000 (5% of members were already paying their voluntary $5 contribution before 2003). The final impact on the site is less significant than it may appear, says Mark

[70] http://www.rhizome.org. From an interview with Mark Tribe on April 30, 2003.

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Tribe. The number of artistic submissions per month is down to 60 from 100, but average quality is better than before, which means the number of works selected for the site has not really changed. The impact on exchanges among members is also reported to be minimal.

Despite the attempt to become more independent, revenues generated by voluntary contributions from members remain marginal for Rhizome.org: they account for about 5% of all revenues, with the rest generated by third parties, primarily philanthropic donations (and occasionally small government subsidies for research). As with many avant-garde artistic initiatives, Rhizome.org depends on its patrons.

4.13 The Louvre Museum

Description The Louvre Museum Web site[71] was created in 1995. It now attracts about six millions visitors each year, that is, as many as the actual museum. The site, which currently allows visitors to view from 1,000 to 1,500 works as well as practical information on the museum and on visiting, is programmed in HTML, without databases. Its organization into chapters and sub-chapters is based on book culture. The current site was created gradually, piece by piece, and had no separate budget or team until recently. The site is in the process of being completely overhauled. The first phase of the project, slated for 2004, will cost from €6 million to €8 million. Among the changes to be made: a complete database of all the works (10,000 paintings and 140,000 drawings).

Whereas the former site was informative, the new one will be more educational. The works will be presented in several different ways (for novices, experts, children, and so on). It will also allow Web visitors to create an itinerary in the museum and to find out how long that visit will take in the actual museum. The site will also allow those who have visited the actual Louvre to create a personal space with the works that impressed them most. Generally, emphasis will be placed more on the experience of the museum than on the works as such. The goal is to help future visitors to the museum to find their way, create a printable itinerary through the halls, and estimate their visiting time. Without ruling out the possibility of adding cyberhalls (for exhibits that never took place or to allow for comparisons of certain works), the site will remain an invitation to see the works in person.

Determinants In terms of content, the approach is primarily distributive and reusability is very low. In fact, the justification for the Web site is found not in the Web itself, but in the services it is promoting in the material world. In terms of use, the person-to-machine interaction should be at the reactive level. There is little opportunity for appropriation to exceed the passive adoption phase. In terms of the other aspects, the audience is international (service will be offered in several languages), general, and as wide as possible (different approaches for different types of users).

Funding Three sponsors are funding the redesign project, which will cost about €6 million. The rest of the budget is covered by the Louvre from its annual budgets. Once the Web site is redesigned, the site itself will have to cover the costs of Web hosting and content translation. The Internet service will be paid from the museum's own funds.

How will the Louvre's site generate revenues? Primarily from the sale of ancillary products, books, posters, CD-ROMs, etc. The commercial part of the site, however, is managed entirely by the *Réunion des musées nationaux* [union of national museums], which pays royalties on sales.

While the site does not charge visitors directly, the museum is counting on cybervisits to lead to real visits. That expectation has not yet been tested in the field, although 10% of the museum's visitors are known to have consulted the Web site before visiting.

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[71] http://www.louvre.fr/. From two interviews, one on May 13, 2003, with Claude Kermel, responsible for the editorial project, Marie-Claire Le Bourdellès, responsible for editorial content, and Myriam Prot, project management consultant for the Web site's redesign, and the other on May 15, 2003, with Christophe Monin, head of the sponsorship department.

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In short, funding for the redesign of the Web site will be provided almost entirely by third parties through donations, with part of the cost covered by the provider itself. Once the new site is up and running, the museum hopes funding for the site will be generated mainly by users based on the classic merchant model. The remainder will be supplied by the museum in the hope of increasing the sale of tickets at the museum's door, which corresponds to its "real-world" positioning.

4.14 The Metropolitan Museum of Art

Description The Web site of New York's Metropolitan Museum of Art was created in 1996.[72] It was redesigned in 2000 and is now visited by 10 million people a year, with 62 million pages viewed in 2002. The model for the Met's site is described as "missionary and mercenary." This involves, on one hand, helping visitors develop greater appreciation for art in general and the Met's collections or exhibits in particular. On the other hand, it encourages visitors to become patrons and tries to direct them toward the e-store. The museum fulfills its cultural mission by offering a great deal of free content and naturally solicits its visitors. By working together, the Met's 18 department have gradually made 6,000 digital works available online out of the two million works in its entire collection. The work continues, though not on a massive scale. The site also offers free educational content, but no cybervisit or plan of the museum. However, the site can be navigated using a map in two hemispheres and a timeline to find content by place and time. The mailing list system, with 120,000 subscribers (over 110,000 of whom are American), is considered to be an extension of the museum. Two million messages were sent last year containing cultural information, advertisements for upcoming exhibits, and special offers for readers at the museum's e-store.

The e-store sells close to 2,000 different items. Its total sales are not made public, but are reported to double every year. The Web site's philosophy is to take the e-store as seriously as the artistic sections. In addition to all the products, the site also allows visitors to make donations of US$50 to US$10,000 (with every level of donation giving the donor certain privileges) or to become Met Net members for US$55 in exchange for free museum tickets, a t-shirt, and other gifts.

Determinants In terms of content, the Met's Web site can be described as distributive and based on alert. Content is not reusable and the project mainly serves the purposes of the real museum. Interaction is person-to-machine, but allows wealthy art enthusiasts to participate actively in the life of the museum through donations, although involvement is mostly in the material world, for example, with access to certain private halls. In general, the user is in reactive mode.

In terms of clientele, the site is seen as global-oriented, although no services are offered in other languages. The target audience is the general public.

Funding The Web site costs about US$1 million per year to maintain and develop.[73] Site costs are covered partly, if not entirely, by visitors. The 10,000 Net Met subscriptions alone, at US$55 each, generate US$550,000. Sales figures for the e-store are not known, but it likely generates substantial revenues, growing yearly.

The site likely turns a profit, or is close to turning one, using the merchant and subscription models alone. Given the other potential revenue sources—three years ago sponsorships allowed the Met to redesign the site—the Met's Web site appears to be an excellent vehicle for the museum.

4.15 Cmathématique

Description *Cmathématique*[74] is the Web site for a Quebec television show of the same name, produced by Téléfiction for two seasons and broadcast by Z Télé, then by TFO (*Télévision française de l'Ontario*), which bought the rights until 2006. The site, which is mainly based on the second season, has 13 major

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[72] http://www.metmuseum.org/. Interview with Emily Rafferty on May 20, 2003.

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[74] http://www.cmathematique.com. From an interview with Élaine Jacques on May 9, 2003.

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themes reflecting areas of everyday life where mathematics come into play. The site was launched in fall 2001 and has over a thousand pages of content, including columns that are updated weekly and discussion forums (only modestly successful with just 225 messages in two years). The texts target high school students. Although a mathematician helped create the site, the content does not necessarily meet the objectives of the provincial ministry of education.

From April 2002 to January 2003 when the show was broadcast in Ontario, 11,742 persons visited the Web site every day, most of whom were from the four corners of the world. The high traffic and the many visitors from countries other than Canada surprised the designers of the Web site, who had created the site with a local clientele in mind.

It is hard to determine the degree to which the existence of the Web site contributed to TFO's decision to purchase the show for five seasons. However, one thing is certain: the Web site was a determining factor when the show was rebroadcast on Canal Savoir in summer 2003. It represents an added value, but one that is hard to estimate, concedes the spokesperson for Téléfiction.

Determinants *C'est mathématique* can be defined as a Web site based more on distribution than exchange. There are a few exchanges and an embryonic community, but the site is not structured around those elements. The content, which can be used in class or as a starting point for personal projects, has a definite reuse value that contributes greatly to the site's appeal. Its positioning is not strictly Web-based, but helps to sell the show and vice versa. The market is local (Quebec/Ontario) although the international audience is much larger than expected. The target, high school teaching, is fairly broad: the positioning is aimed at professionals, teachers, and the general public. The site is managed by a private company and is suited to fixed access on limited bandwidth.

Funding Budget information is confidential, but we know that initial funding was provided by the Savoir Fund (now the Vidéotron Fund) and must cover the site's operating expenses for three years. The site is thus primarily paid for by third parties. A fair number of the show's videocassettes have been sold on the site—merchant model, paid by the user—but not enough to have any real financial impact.

Élaine Jacques, who is in charge of the site, would like to see it continue to develop and stay online. Sale of the *C'est mathématique* series to Canal Savoir is a move in that direction, but the show will undoubtedly disappear. The remaining possibility is to sell the content to the educational milieu; so far there has been no response to offers to sell the online content to other firms.

4.16 Educal.com

Description Educal.com is a recent project by Cogniscience, a multimedia company founded almost 20 years ago.[75] The site, which went live in early 2003, contains 300 math lessons for primary school students, based directly on the official curriculum in Quebec and a few other Canadian provinces. Each lesson is equivalent to about one week of material taught in class. The lessons are currently offered to school boards in the form of a subscription that costs C$0.50 per lesson, per student. In fall 2003, the existing site will be enriched with new lessons designed for high school students. An online simulator will be added at the same time to allow students from various schools to work together on the same problem.

About a hundred teachers were involved in the project from the start. The total investment is C$18 million and technology accounts for less than 15% of costs. The fact that Cogniscience is a known publisher in science and math facilitated the project.

The site is promoted among teachers, parents and students, in that order. Most revenues stem from schools purchasing the product. In addition to the online exercises, the program also offers printed books to

[75] http://www.Educal.com. From an interview with Serge Carrier, president of Cogniscience, on June 11, 2003.

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overcome the resistance of schools less familiar with information technology. Once a school integrates the product into its courses, it is much easier to sell to parents.

Determinants The Web site can be described as based on content distributed and designed to be reused in a school setting. The positioning is not strictly Web-based, to the extent that the site simply supports the existing curriculum. In general, use is person-to-machine in reactive mode and geared toward passive adoption. However, the planned forum will undoubtedly lead to other uses. The geography of the project is narrowly defined and in fact corresponds to Educal.com's obligation to adapt to each territory's official curriculum. The market consists of three well-defined niches (teachers, parents and students). The producer is a private company. The project requires limited bandwidth, but can accommodate roving access (at school and at home).

Funding A return on the C$18 million investment is not yet assured. However, there is little online content that corresponds to the official curriculum, which gives Educal.com a running start. While the utility or pay-as-you-go model for each lesson/student of the school board is realistic, the experiment is still too recent to determine the outcome.

Adoption by school boards should motivate the parents of students to buy as well (subscription or straight sale model). The e-store, which sells products unrelated to Educal.com using a model similar to the affiliate model, is also promising in terms of revenue. It remains to be seen whether the revenues will suffice to adapt the content to ever changing curricula.

4.17 SCRAN

Description SCRAN[76] (Scottish Cultural Resources Access Network) was created in 1996 by Scotland's museums, libraries and archives centres. Its mission is to digitize local cultural assets and use them to produce educational multimedia for the Web. The material may be from any source: museums, private archives, etc. All items are digitized using a single standard, then interpreted in documents that retrace aspects of Scottish history. The raw data are not very valuable as such, admits SCRAN's director. It involves work, classification in various ways, the creation of links between sections, the creation of collections, connections to curricula, and so on. Every step requires work but adds a great deal of value.

The SCRAN catalogue now contains one million references, including 102,000 multimedia documents: pictures, videos, sound recordings, and cyberanimation. All documents are archived at the highest possible resolution to handle future requirements and are exhaustively described with metadata. Those who lend their collection grant SCRAN the right to use the material for educational purposes and obtain an "interoperable" copy of the digitized data in return. At first, SCRAN digitized everything it received from the public, without exception. Then a selection was made, based on selected themes or educational value. SCRAN's image banks are open to the public in reduced format (150 pixels diagonally), which also provides access to descriptive metadata. For anything more, users must subscribe to the Web site.

The Web site has many subscribers, mostly from the field of education. These include all the primary schools in Scotland, about 20% of Scottish libraries, a smaller proportion of libraries in the United Kingdom, and several colleges all over Great Britain. Many museums, archives centres, research groups, and individuals also subscribe to the site. In total, the SCRAN site receives about 1.5 million hits per month.

Determinants In terms of content, SCRAN appears to be based entirely on the distribution of ready-to-use content. Allan Blunt, director of the project, describes the Internet as a method of delivery. The content is provided with a simple right of use and a positioning that is clearly Web-based. Use is mainly person-to-machine in either non-interactive or reactive mode. Passive adoption seems to be the highest possible level of appropriation. The geography of the project, however, is well defined: to offer local resources to a

[76] http://www.scran.ac.uk. From an interview with Allan Blunt on May 6, 2003.

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national and possibly an international market and to offer educational content to a wider audience. SCRAN is both a not-for-profit organization and a private business.

Funding SCRAN was created through a £6 million grant from Great Britain's Millennium Fund. The original grant, which was intended to cover the first seven years of operation, has been supplemented by another £4 million. One-third of the organization's annual revenues are currently from subscriptions.

In terms of revenue, the model is a mixed model with one-third of revenues generated by users (subscription model) and the remainder, by government funds. Subscription revenues are high enough for the organization to survive, but third-party funding is what allows SCRAN to grow and diversify its collections

This picture would be incomplete without a look at cost reduction strategies. When SCRAN digitizes the collections of a small regional museum, for example, it does not foot the entire bill; instead, it handles the work and in exchange receives a right of use for educational purposes. The museum receives its own copy of the digitized data in exchange for participating.

4.18 Fathom.com

Description Fathom.com[77] is a private company founded in 2000 on the initiative of Columbia University. At a time when much hope was placed in distance education, this vast project was supposed to become an essential reference, offering conferences, courses and entire university programs as well as an inexhaustible source of original content. But the site finally had to cease operating in late 2002. Fathom's goal was to become a prestigious institution like the 13 partners that participated in the site's content, including the London School of Economics and Political Science, the British Library, the Cambridge University Press, the University of Chicago, and the New York Public Library. Fathom apparently even refused funding from various companies to preserve the academic integrity of its content. The project was directed by Ann Kirschner, who launched the cable teletext system (Request), the first satellite television network (PrimeTime 24), and the first National Football League broadcasts on satellite television and the Internet (NFL Sunday Ticket and NFL.com). Fathom had a staff of 30 in New York and 7 in London, but over 800 employees at member institutions were directly or indirectly involved in content creation.

Unlike the free project that MIT was piloting at the time (OpenCourseWare), this paid content was intended to be at the centre of interactivity between users and teachers, resources and courses, all on the same site. Note that seminars were not conducted in real time, but in the form of delayed-time exchanges. Topics covered a range of academic fields, from *Shakespeare and Management* to *Bioacoustics: Cetaceans and Seeing Sounds*. By opting for the highest quality of content, in the best academic tradition, Fathom hoped to become the educational reference while using a business model. Initially relying on word of mouth, the online university only launched its first marketing campaign in late 2001. Its target clientele: individuals who were unable to attend university for geographical or physical reasons.

Fathom attracted about 750,000 one-time visitors from about forty countries, including 100,000 newsletter subscribers. However, the site was never able to attract the 200,000 regular users (equivalent to part-time or full-time students) that Columbia expected, hence its failure. Today Fathom's content is still available, but the site no longer accepts new registrations. Fathom's partner institutions decided to continue their e-learning experiments individually.

Determinants In short, Fathom can be described as a primarily distributive site, but one that allows for exchanges along the lines of a community of interest and dialogue. The products were subject to a right of use and a right of study and were severable insofar as one could purchase a course separately, not necessarily as part of a program. The site's positioning was resolutely and solely Web-based. In terms of use, Fathom allowed for person-to-machine interaction and particularly person-to-person interaction. The user was expected to be active, at least in the seminars, based on the principle of delayed-time active

[77] http://www.fathom.com. From an interview with Ann Kirschner on June 17, 2003.

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participation. The project was clearly international in scope and targeted two separate audiences: mobility impaired persons and persons in remote areas. The project, which was managed by a private firm, required fixed access to high-speed Internet.

Funding In total, Columbia invested $25 million in Fathom. However, the context of that investment at the time is important: in 2000, American universities invested US$100 million in Web projects, versus US$482 million invested by venture capital companies in technologies related to that market. Since then, optimism regarding higher education on the Web has dropped substantially after numerous failures. Fathom offered free courses (sometimes followed by seminars that cost from US$20 to US$30) and paid courses, which could be credited toward a degree. Sales were based on the utility or pay-as-you-go model. The price of a course could be as high as US$500, i.e., as much as a course taken on-site at the university.

The profitability expected as of 2003 never materialized. Why the failure? Some observers point to the investors' focus on technology rather than content, favouring costly real-time video systems to the detriment of clear navigation.

Ann Kirschner, however, cites three reasons for Fathom's failure: their partners' lack of effectiveness in transferring their clientele to Fathom; poor access to high-speed Internet in some areas of the world; and especially, the fact that the experiment was given too short a time period. Profitability would have required four or five years, according to Ms. Kirschner, who continues to believe the model can be successful with the same rates, provided it is given time to become established.

4.2 Promising Trends on the Internet

Based on our examination of value determinants and potential business models, a number of trends appear promising.

4.21 The Mixed Content Approach

The mixed content strategy can be approached in three different, yet related, ways. All three use free content to sell something else,[78] and in doing so, rely on the value of attention. Once attention has been captured, the site invariably seeks to direct it to paid content. The approaches differ in the definition of the product or service sold on the Web or delivered in the material world.

A Web site can offer free digital content in order to sell physical products. This content may be described briefly in technical terms, as with product catalogues from manufacturers or, conversely, may be described in detail and be the topic of debate among the site's members, as with Amazon.com.

A Web site can offer free digital content in order to sell services. These services may be Web-based, as with Yahoo, which now offers all kinds of advanced services for which the client is charged. While the connection between content and the service offered is tenuous in this particular case, an expert who makes his or her best work available online in order to win other commissions establishes a clear correlation between free content and paid content.

A Web site can offer some of its generic digital content free of charge, but mainly in order to convince the client to buy more detailed, customized content or content in a higher quality format. Such content may be sold in many ways, from subscription to pay-as-you-go. Many sites for news magazines and scholarly journals use this approach.

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[78] "They [Web businesses] are unlikely to get away with simply slapping a fee on all their content. Instead, most sites will still need to draw visitors with free content in order to tempt them with paid material." MANGALINDAN, Mylene. "No More Free Lunch: In the Future, the Best Things on the Web May Not Be Free," in *The Wall Street Journal*, New York, April 15, 2002.

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4.22 Taking Advantage of the Internet to Cut Costs

As seen earlier, the Internet is an ideal way to mutualize resources, exchange content, and so on. Digital access allows for better integration of certain costs associated with product or service delivery.

This approach can be used in two different contexts:

- From general portals to community sites, a high volume of content can be offered at lesser cost by increasing the number of agreements with partners that deliver content in exchange for visibility or other non-monetary benefits. In this case, the considerable volume of content provides value, which is associated with content organization.

- The Internet as a means of distribution for like products. As long as the content can be fully digitized (software, music, films, etc.), cultural content can be distributed for less than it would cost to distribute its analogue or physical version. This approach is beginning to work in the music industry and to be adapted to games and even films.

4.23 Reuse of Content

The strategy of reusing content offers great possibility but often raises significant legal issues. Essentially, the strategy consists of charging for content that can be used wholly or partly to create new content. The person or organization offering the content may own it or may be acting as an agent. This model has been used for years by news agencies and for stock photos. Experiences in the field of education—where students appropriate various elements to create research projects—are promising. The photography department of France's *Réunion des musées nationaux* recently discovered that individuals have a strong interest in their services, which no one had expected.[79] The most common approach on the Internet appears to consist of distributing texts and images with limited rights of reuse. A classic example: material that can be used in class free of charge, under the concept of *fair use*[80] or under a license or a negotiated agreement.

The *syndication* system follows the same approach. It consists of selling the same product to many customers, who in turn add it to their own product and redistribute it. The system works because the information is infinitely reusable and can be separated easily into blocks, and because many independent distributors can reach as many small markets or niches.[81]

4.24 Cybercommunities

Cybercommunities are multiplying on the Internet. Their strengths include: the often low cost of launching and operating a cybercommunity (although moderation and coordination costs should not be underestimated); the power of word of mouth;[82] and the ability to connect people with common interests

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[79] Based on a June 2, 2003, interview with Michel Richard, head of the multimedia department at the *Réunion des musées nationaux*.

[80] A free, limited right of use granted under the Anglo-Saxon copyright system to certain users like researchers, public libraries, and schoolchildren.

[81] WERBACH, Kevin. "Syndication: The Emerging Model for Business in the Internet Era" in *The Harvard Business Review*, May-June 2000, pp. 86-87.

[82] "Online feedback mechanisms harness the remarkable ability of the Web to not only disseminate, but also collect and aggregate information from large communities at low cost, to artificially construct large-scale word-of-mouth networks. [...] Their popularity has potentially important implications for a wide range of management activities such as customer acquisition and retention, brand building, product development and quality assurance." DELLAROCAS, Chrysanthos. *The Digitalization of Word-of-Mouth: Promise and Challenges of Online Feedback Mechanisms*. Center for eBusiness at MIT, March 2003, pp. 27-28.
http://ebusiness.mit.edu/research/papers/173_Dellarocas_Word_of_Mouth.pdf

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but a range of skills.[83] Many such communities focus on cultural themes like Canadian history, music, and hobbies.

User contributions are valuable even when communities are not based on a specific theme and require no particular skills—for example, book reviews on Amazon.com or transaction reports on e-Bay. They build confidence in a product or service and represent an effective network that attracts and retains users.[84]

These Web sites sometimes bring together thousands of regular users, which indicates their relevance to the cultural scene. They are created spontaneously and freely. How can living communities based on cultural identity be created systematically? The Cipher project[85] is studying that question, but its work is not yet finished and the answers have not been found.

The challenge is to gather all the elements necessary to develop the community: participation by specialists, availability of content, organized moderation, etc.

Information control is an issue for all cybercommunities, whether controlled directly or not. Users who are frustrated or disappointed with the service freely and publicly express their frustration. Censorship is not an option. A censored forum would quickly lose its credibility to the point of becoming irrelevant.[86] That is why it is important to implement quality tools for managing the community.

4.25 Payment by Flagships

If users are reluctant to pay, turning to an organization that will pay for everyone may be a profitable strategy. Subscriptions sold to libraries and businesses fall under this category. Users might not pay out of pocket if the service is sold on a pay-as-you-go basis, but are happy to use it when it's available. Many services in the educational milieu belong to this category. From the provider's point of view, this approach offers real advantages. First, its sales effort focuses on a few major institutional stakeholders that are easily identifiable, instead of thousands of faceless users. Second, collection is also easier. Finally, purchase of the service transfers the purchaser's credibility to the product.

That credibility, of course, in turn becomes marketable. For example, if a provincial ministry of education recognizes the value of a product and adds it to the curriculum, it becomes relatively easy for the provider to sell ancillary products to the parents of students.[87] This is similar to the mixed content strategy where a "free" service (paid for collectively in this case) serves as a springboard to sell paid products.

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[83] Regarding e-business in particular: "Creating virtual communities has benefits for both consumers and vendors. Consumers are able to share their experiences, access competing vendors and ideas, and shape the content they receive. Vendors can better target their product offerings to specific audiences that have segmented themselves." INSEAD, ZOTT, C. and DONLEVY, J.J., *Op. Cit.*, p. 15. http://www.insead.edu/entrepreneurship/ecommerce.pdf.

[84] DELLAROCAS, Chrysanthos. *The Digitalization of Word-of-Mouth: Promise and Challenges of Online Feedback Mechanisms*. Center for eBusiness at MIT, March 2003, pp. 3-4. http://ebusiness.mit.edu/research/papers/173_Dellarocas_Word_of_Mouth.pdf

[85] See http://www.cultivate-int.org/issue8/cipher/.

[86] "Nonetheless, the overall advantages outweigh these risks when company products and services have sufficiently high intrinsic quality. In summary, the advantages of creating such communities include: 1. the company fosters a relationship with and among its customers, 2. customer loyalty increases as customers receive better service and join the community, 3. the company sees lower costs for technical support, and 4. the company learns of new problems and opportunities." URBAN, Glen L. *The Trust Imperative*. Paper 175, Center for eBusiness at MIT, March 2003, pp.8-9. http://ebusiness.mit.edu/research/papers/175_Urban_Trust.pdf.

[87] This is the strategy that Educal.com uses in Quebec (http://www.Educal.com).

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4.26 Multi-Distribution

If revenues on the Internet fall short, one potential solution is to reuse the original content on different platforms. The purpose of that strategy is to reach an audience within a group and to promote the content several ways. The Internet is just one of many ways to distribute a product.[88] It can also be distributed on CD-ROM and DVD, on cell phones and personal digital assistants, in book form or through other Web sites. This relatively new approach, which is a product of the convergence trend, requires a firm command of technology, sound relations with various industries, and a product that lends itself to such transformations. However, it also increases the chance of reaching a wider audience and of generating revenues.

[88] ELLIS, David. *Making New Medias Work for Canadians: An Industry Survey and Assessment of the Canada New Media Fund. A Report to Telefilm Canada.* Omnia Communications, February 2003, pp. 47-50.

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Chapter 5 –Identifying the Technical and Technological Risks that Affect the Economic Sustainability of Online Cultural Content and the Conservation of Digitized Heritage

There is a cost to information technology that is difficult to determine: its rapid obsolescence. A Web site with a short-lived vocation, designed to promote a specific project, for example, can afford to ignore that factor. But a project with medium- to long-term objectives must plan for obsolescence, which can be foreseen from the outset. That is the best-known way to control related costs and, in particular, to avoid problems in even the near future.

5.1 Forms of Obsolescence

Information technology standards and media age quickly. It has become mundane to remark on how quickly yesterday's standard—the 5¼-inch diskette or the electronic bulletin board in VT-100 format—has disappeared. What was easy to access yesterday is no longer at all accessible today. There are plenty of stories about important data that have been lost forever. Although some libraries can conserve books that are hundreds of years old, very few can allow users to consult information technology media and files that are only a few years old.

Yet data are the main assets of most cultural and heritage Web sites. Whether the data were obtained by digitizing physical collections at great expense or, more sensitive yet, the works to be conserved were initially created in electronic format, a way must be found to preserve them for the duration of their useful life.

A long-term data preservation strategy must therefore entail at least two objectives:

- to minimize the risk of losing data that is expensive or impossible to replace; and
- to minimize the cost of such preservation.

5.11 Obsolescence of Equipment

Computer equipment has a limited lifespan. In theory, a well-maintained computer can work for about ten years, but in practice, an important component may be hard to replace if it breaks down or is made obsolete by a new application.

As computers evolve, they use new ways of storing and exchanging data. Countless data storage media have become impossible or difficult to read today: various types of magnetic tape, removable hard disks, 8-inch and 5¼-inch diskettes, and so on. Even the 3½-inch diskette is now on its way out.

If necessary, it may be possible to find working computers that still support obsolete material like an 8-inch diskette or an old hard disk. But those old diskettes have a limited lifespan—part of the information may be lost. In the best case, the technology gap between that machine and its modern equivalent probably prevents the exchange of data between the two computers. When confined to an outdated machine, data have no value.

Emulation

Emulation is the solution usually proposed to the problem of data designed for obsolete computers or software. An emulator is software that functions on the latest computer but is designed to imitate the functions of an older machine.

For example, communities of users have designed many emulators that allow a modern PC to run games that were designed for the computers of the 1980s, like the Atari ST, game consoles, or even arcade video games. Those games have been transferred to modern media (CD-ROMs, Web sites) by various means,

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which is not always easy to do.[89] The emulator simulates the workings of an operating system (Atari) or a ROM microprocessor (game cartridges).

While the legality of those initiatives is doubtful (the games are likely still protected even though they are no longer commercially available), they show the feasibility of emulation as a technique.[90] Furthermore, operating systems that are much more complex than those of the 1980s can also be emulated. Linux, for example, has an emulator that allows the user to run most of the software created for Windows.

Emulation can be considered a valid strategy in the long term. At this time no one specializes in designing that type of software, and as information technology evolves, more and more interfaces between old and new computers will become necessary. Another problem in the Internet era is that certain software use external resources from the Web. What can be done when these resources are no longer available?

5.12 Obsolescence of Media

Data that is archived for the long term are stored on media like magnetic tape, diskettes, and CD-ROMs. These media have a limited lifespan. The useful life of a diskette ranges from 2 to 10 years, after which there is a much greater chance that the data will be lost. Digitized magnetic tape has a useful life of 10 to 15 years, and a CD-ROM, 20 years. In fact, these figures are highly disputed and every study shows substantial variations in the available estimates.[91]

Data Refreshing

A medium's limited lifespan means that from time to time, the data must be recopied onto another tape or a new medium. Ideally, that opportunity will be used to transfer data from an old medium to a new one during the relatively short period when both technologies are in use.[92]

This routine operation must be performed carefully. The data must not be corrupted by errors during copying or through techniques like compression. Organizations whose mandate is not to conserve everything must choose wisely which data to preserve and which not to.

5.13 Obsolescence of Formats

Software has a particularly short lifespan. New versions are developed regularly and files created with the latest version are not fully compatible with those produced using the last version. Of course, those who design the new version generally provide for a way to convert the old format to the new, referred to as *upward compatibility* among versions.

That compatibility is often limited. The latest version of a software does not necessarily support its oldest versions, in which case the user is likely to have unintelligible documents on his or her hands. Moreover, software publishers have ups and downs. Ten years ago, WordPerfect was the most widely used word

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[89] ROTHENBERG, Jeff. *Ensuring the Longevity of Digital Information*. RAND. Revised February 22, 1999, p. 15. http://www.clir.org/programs/otherativ/ensuring.pdf.

[90] And perhaps its limits as well. Jaron Lanier, creator of one of the first video games, *Moon Dust*, upon seeing an emulated version of his work, stated that the game was completely different from the one he had created because the speed was now very different. Cited by BESSER, Howard, *Digital Longevity*, 1999. http://www.gseis.ucla.edu/~howard/Papers/sfs-longevity.htm. Also published in Maxine Sitts (Ed.), *Handbook for Digital Projects: A Management Tool for Preservation and Access*, Andover MA: Northeast Document Conservation Center, 2000, pages 155-166.

[91] ROTHENBERG, *Op. Cit.*, p. 3.

[92] BESSER, Howard, *Digital Longevity*, 1999. http://www.gseis.ucla.edu/~howard/Papers/sfs-longevity.htm. Also published in Maxine Sitts (Ed.), **Handbook for Digital Projects: A Management Tool for Preservation and Access**, Andover MA: Northeast Document Conservation Center, 2000, pages 155-166.

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processing program, but has now been replaced by Microsoft Word. For images, some formats have become standards: JPEG for images and MPEG for video. In video, for example, the MPEG-4 format and its complements MPEG-7 and MPEG-21 are beginning to emerge. They are expected to dominate the industry for the next five to ten years. A natural and desirable evolution leads to standard formats that are "enriched" with non-standard elements.[93]

Migration

Migration is the most popular solution to the problem of aging formats. An archivist who received a file in Wordstar format in 1985 could have converted it to WordPerfect 4.1 in 1988, then to WordPerfect 5.0 in 1992, to Microsoft Word 95 in 1996, and finally to Microsoft Word 2000 in 2001. All the original information would then have been preserved in an intelligible format, on a medium updated at the right time—in theory, at least. The reality is that converting data from one format to another sometimes results in certain losses. In a word processing program, tabulations may be lost, footnotes may be combined with the body of text, etc. To ensure longevity, it is best to migrate to a standardized format where one exists, for example, XML for structured texts.

The problem is even more serious with databases. The first databases were based on a hierarchical model. In the 1970s, relational databases became the norm. Today, object-oriented databases are the rule. These changes in paradigm are so profound that data cannot always migrate from one form to another.[94] Rapidly changing information technology reduces migration to a medium-term solution.[95] One popular solution is to convert data into XML format to preserve the structure and be able to reintegrate it into a new database if necessary.

5.14 Obsolescence of Content

The concept refers to updating a Web site during the course of its useful life. A cultural Web site loses credibility if it presents an artist as living when he or she passed away months ago or presents an author as up-and-coming after he or she has a bestseller.[96]

When a user comes across outdated information, all the information on the Web site loses credibility in his or her eyes. The more outdated the information, the more marked is the loss of value. A site that has not been maintained for a long time may nevertheless have an historic value. That is why various attempts have been made to archive the Web.

Updates

The solution to obsolete content is continual updates. It is certainly possible for some content to be automated, such as stock exchange lists or news agency stories that are delivered automatically in chronological order. But where text must be reviewed and changed, human evaluation is mandatory. If the site presents dated information, the reflex would be, for example, to add new information or to archive the information.

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[93] ROTHENBERG, *Op. Cit.*, pp. 12-13.

[94] ROTHENBERG, *Op. Cit.*, p. 13. "Paradigm shifts of this kind can make it extremely difficult, if not meaningless, to translate old documents into new standard forms."

[95] *The DigiCULT Report. Technological Landscapes for Tomorrow's Cultural Economy – Unlocking the Value of Cultural Heritage.* Executive Summary. European Commission, DG Information Society, January 2002.

[96] According to the National Library of Canada, digital products that are not updated become obsolete within three to five years. The institution admits that it is careful and has curbed production of new digital online content because it does not know whether the funding necessary for updates will be available when the time comes. WALL COMMUNICATIONS. *A Study of Business Models Sustaining the Development of Digital Cultural Content.* Ottawa, June 2002. p. 49.
http://www.wallcom.ca/Documents/DigitalCultContent.doc.

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5.15 Obsolescence of Use

Changes in information technology or in styles may result in some forms of use being abandoned when they seemed to have become standard practice. Before the computer mouse became common in the early 1990s, menus were generally controlled using numbers or letters. Users pressed 1 to save and 2 to delete, or S to save and D to delete. This practice became marginal with graphic interfaces, but is resurfacing today with cell phones. Some sections of Web sites may become less relevant even if the rest of the site retains its appeal. This is notably the case with Photo.net's chat room,[97] which used to be one of the site's most popular functions. For a number of reasons, users abandoned the chat room in 2001 after the software was updated. The function, which became both useless and unused, was finally eliminated in 2003: its time was up. Yet online chatting continues to thrive elsewhere.

A more subtle form of obsolescence: museums are predicting that in the next few years, regular two-dimensional photographs will no longer surprise and capture audiences. The best museums will provide three-dimensional representations of their works on the Internet. The others will have to deal with the loss of value of a product that is comparatively less attractive and whose use is somewhat outdated under the circumstances.

Another, more long-term case: some researchers are questioning the relevance of compressed file formats, particularly those that delete information. A JPEG file is perfectly acceptable to the human eye. But that information may become vital with new systems in which images will no longer be viewed with the human eye, but processed with other machines. Will machine vision adapt to the limits of human vision? Perhaps not.[98]

Redesign

What to do with a Web site threatened with obsolescence of use? Redesign it. Simply remove what no longer works, place more emphasis on what attracts clients, and reconsider the site's navigation based on current industry standards and ergonomic best practices. In some cases, the type of information on the site must also be reviewed. Obsolescence of use is the high-tech version of a phenomenon well known to the business world: even the best systems come to an end. It has become increasingly clear that the form in which content is presented must involve redesigning Web sites in order to develop a new approach based on changes in use, while keeping in mind the strengths and weaknesses of the last site.

5.2 Preparing for the Future

Data preservation must be organized systematically and far in advance. Cultural institutions that disseminate more and more online cultural content as part of a preservation process must prepare to do so without delay. In the case of digital archives, any phases of data refreshing, migration and emulation that will be necessary in the future must be planned immediately. Technology is evolving so quickly that delays usually result in complex, labour-intensive data storage processes. Moreover, use cannot be expected to establish the long-term value of information.[99]

The details of a policy for managing digital collections are beyond the scope of this study, but such a policy must be drafted and approved by everyone at the institution and must deal ahead of time with issues related to data organization and storage, as well as access to those data and their potential destruction or preservation in the long term.[100] This is where the issue of metadata becomes particularly important. The industry, even when less concerned with data preservation, can facilitate the work of curators by adopting standardized rather than proprietary formats. Some countries, including France, are already considering

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[97] http://www.Photo.net
[98] BESSER, *Op. Cit.*, p. 3.
[99] The Cedars Project. *Cedars Guide to Digital Collection Management,* March 2002, pp. 4-5. http://www.leeds.ac.uk/cedars/guideto/collmanagement/.
[100] Ibid, p. 18.

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intervening with developers in that respect.[101] In addition to the product itself, the industry should also provide most of the necessary metadata, particularly those concerning the software used to create the piece and copyright information.

5.21 Financial Issues

Over the lifespan of a work, will the conservation of digital data cost far more than conventional archiving? The answer is unclear, but archivists widely believe that it will.

In coming years much expense will likely result from the short lifespan of modern technology, making conservation much more laborious. Just how much does it cost to conserve digital data? Contradictory evaluations are hard to validate and are of no assistance in establishing budgets.[102] One approach attempts to separate the high cost of creating the archive (selecting digital material for archiving, purchasing the necessary equipment, buying the rights, and creating the metadata) and the more moderate cost of long-term maintenance (storage, including data refreshing and migration, administration, and policy review.)[103]

5.22 Metadata

Etymologically, *metadata* means "data about data." Librarians, for example, often use the word in reference to cataloguing and other forms of descriptive information. In the field of digital archives, however, the word refers to the technical properties of an element, as well as information regarding its administration, use and preservation.[104] Metadata can become hard to gather when they must include all information, not only about the author and the date and place of creation, but also about the software used, the format, the compression, and the various copyright holders. The PANDORA system adopted in Australia has 25 categories, each with three levels of granularity; the British Cedars report recommended 18 elements and 38 sub-elements; and the American METS project is developing an even more complete model in XML.

Metadata will be at the heart of every effort to preserve digital data in the next few decades. They will be used to create maintenance and migration programs and will provide information on collections for the purpose of orienting preservation strategies and systems. Institutions must already have a metadata policy that can meet the challenges of the future.[105] The Cedars Project proposes two ways to reduce metadata costs: one for curators and the other for the industry. The "curator" approach consists of automating metadata acquisition as much as possible, either when a digital object is created (by keeping a trace of the

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[101] LIBRARY OF CONGRESS, collaborative initiative. *Preserving our Digital Heritage: Plan for the National Digital Information Infrastructure and Preservation Program.* October 2002. Appendix 5, p. 140. http://www.digitalpreservation.gov/ndiipp/repor/ndiipp_plan.pdf.

[102] "The current highly dynamic state of digital product technology and, more generally, the rapidly evolving nature of the Internet complicate planning for and the implementation of digital product projects. [...] The impact on costs resulting from changing technical standards is largely unknown at this time." WALL COMMUNICATIONS. *A Study of Business Models Sustaining the Development of Digital Cultural Content.* Ottawa, June 2002. p. 49-50.
http://www.wallcom.ca/Documents/DigitalCultContent.doc.

[103] Ibid, pp. 19-21.

[104] GILLILAND-SWETLAND, Anne J. *Enduring Paradigm, New Opportunities: The Value of the Archival Perspective in the Digital Environment.* Council on Library and Information Resources, February 2002.

[105] Whatever the system, the important thing is internal consistency, says Tony Gill, from the Research Librairies Group (U.S.), in an interview conducted on May 22nd, 2003 . If all computerized records are structured the same way, processing will be easy. The expert praises the high degree of interoperability in Canada, which is the result of strictly applied standards.

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digitization process) or when it migrates to a new format (by keeping a trace of the operation). If several institutions have the same digital object, they can also share its record.[106]

With the "industry" approach, the creators of digital products clearly document their products. For example, a CD-ROM publisher already knows what software was used to create the product and the hardware required to read it. The publisher also knows precisely the type of copyright that applies to each element of the product. A firm that digitizes the collections of a public institution should also provide it with technical information on the type of original hardware, the equipment used for digitization and its parameters, the format, the type of compression, etc. Without proper metadata, the costly digitization process may turn out to be only a short-term investment.[107]

[106] The Cedars Project. *Cedars Guide to Preservation Metadata,* March 2002, pp. 13. http://www.leeds.ac.uk/cedars/guideto/metadata/.
[107] Ibid, p. 15.

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Chapter 6 – Legal Aspects of Online Cultural Content and How They Affect the Cultural Web

The copyright issue has become so complex that it delays or discourages many projects. And until copyright holders agree on new formulas better suited to the new technological and cultural order, new challenges will continue to arise. Do some common business practices deprive users of cultural content on the Internet?

6.1 Rights That Are Difficult to Evaluate and Obtain

Society usually develops at a slower pace than technology. There are few areas in which this statement is truer than in intellectual property on the Internet. The multimedia industry and the culture sector are pondering potential solutions. In general, private publishers find royalties too high. Moreover, copyright holders are often difficult to trace, which drives costs even higher. In an interview, one provider of multimedia Web content admits having had to work almost a full week just to sign a contract worth C$400.

On average, based on all the interviews conducted for this study, copyright royalties range from 5% to 15% of a Web project's budget. The more rich and recent the cultural content, the higher the royalties. A 2002 French study revealed that for CD-ROM publishers, royalties account for about 7% of the total cost for a history game, 35% for a history of architecture, and 50% for a contemporary work of art (22% on average).[108] Traditional royalty scales are often better suited to television broadcasting or magazine publishing than to the emerging Web and multimedia sector, which by its nature uses more composite content in a less defined time space.

Other problems arise for libraries, which traditionally commit to providing works "forever," if they have only a right of use for certain content. The publisher that provides the works under license may eventually become bankrupt or stop disseminating its collection in whole or in part if maintenance costs are too high versus the anticipated benefits. Many librarians think they should obtain the right to copy the digital sources to ensure permanent access to the data.[109]

Paradoxically, little is heard from the copyright holders in this debate. Even groups that are well organized to protect their rights, like the *Union des artistes in Québec*, still do not have a truly separate policy for assignment of rights for the Internet. The royalty scale for television—broadcasting—is still applied as is for the Internet. Given this vagueness, we found in our interviews that distributors would rather avoid long-term risks and limit the dissemination of some content based on the applicable rights. It was clear to us that when faced with complex copyright issues, the industry often drops cultural projects. Producers are unwilling to pay royalties for rights in a context currently unfavourable to profitable cultural and heritage projects. Copyright holders are reluctant to sacrifice intellectual property that may be worth a fortune if the Internet becomes profitable.

The presence of major players speculating on enormous collections over which they have a perpetual, low-cost monopoly (among which the best known is Corbis) is also reason for caution. In addition to the issue of compensating the artists, who are sometimes at a loss in dealing with copyright collectives, the creation of monopolies in the cultural field is generally perceived as a potential source of instability. The European Union[110] and France in particular[111] have already stated that they oppose the exclusive assignments of rights.[112]

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[108] ORY-LAVOLLÉE, Bruno. *La diffusion numérique du patrimoine, dimension de la politique culturelle. Rapport à Mme la ministre de la Culture et de la Communication,* January 2002, p. 47 and Appendix 13.
[109] The Cedars Project. *The Cedars Guide to Intellectual Property Rights.* March 2002, p. 4. http://www.leeds.ac.uk/cedars/guidto/ipr/.
[110] The DigiCULT Report. *Technological Landscapes for Tomorrow's Cultural Economy – Unlocking the Value of Cultural Heritage.* Executive Summary. European Commission, DG Information Society, 2002, p. 49.

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The copyright issue is thus a determining factor in the success of an online cultural project. First, the cost of elements contributing to a multimedia work may mean the difference between a project that never gets off the ground and a project that takes flight. Second, even if those elements can be purchased at a reasonable price, contacting the copyright holders is costly in both time and money, a fact that can easily determine whether or not a project is viable. Finally, the licenses obtained must be compatible with the life cycle of an online product.[113]

6.11 Impact on the Industry

The French copyright system, which focuses primarily on the rights of artists, has also led to problems. For example, 30,000 of the 100,000 works digitized by the *Bibliothèque nationale de France* as part of the Gallica project are not available online because the library was unable to obtain the rights: some publishers refused while many others had disappeared. In the film industry, 30% to 40% of films are orphans: the producer has disappeared and no one knows who recovered the rights. To release these films, permission must be obtained from all the supposed authors (director, rewriter, screenwriter, music composer, author of the original work) and from the holders of any neighbouring rights (actors, musicians, producer). The process may take years, even when all those involved are members of copyright collectives. Even if the films are not orphans, Internet dissemination was never anticipated for the oldest films. If pay-per-view movies over the Internet become a reality, French films would be excluded almost entirely.[114]

The situation is no more promising in Canada and considerably prejudices the emergence of the industry in general and public-private partnerships in particular. Negotiating royalties is so difficult and the outcome, so uncertain, that most producers would rather have their own artists work on the original production. It's expensive but easier. Access to national collections is just as challenging. Museums undoubtedly offer better conditions than the Canadian Broadcasting Corporation, but not all private producers know how to work with that material. Our interviews revealed that it is difficult to interest some publishers in digitized content.

In short, the legal difficulty of online digital content stems less from fair compensation of authors than the complexity of administration of copyright and the lack of transparency of some intermediaries.

6.2 Changes in Copyright

For a long time, artists used previous works by others and incorporated them into their own works. This system of influence and hybridization allowed culture to progress. When copyright was invented in the late 18th century, it was intended not to end that practice, but rather to ensure a livelihood for artists by giving them a time-limited monopoly on the use of their work.

The Anglo-Saxon concept of copyright focuses more on the privileges of the intermediary between the author and the public than on those of the author. Rights are often assigned in their entirety. In theory this facilitates all forms of redissemination, since theoretically there is only one copyright holder to negotiate with. However, the system penalizes artists and creates monopolies that can demand exorbitant royalties or even refuse to come to an agreement for business reasons.

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[111] ORY-LAVOLLÉE, *Op. Cit.*, p. 43.

[112] The Art Museum Image Consortium (AMICO) was created specifically to counter the designs of Microsoft and its subsidiary Corbis. http://www.amico.org.

[113] Michel Richard, head of the multimedia department at the Réunion des musées nationaux in France, reports that he now sells photos for the Web at €1 per image, per month. Although that rate is far from that applicable for images published in a book (from €150 to €200 for small runs), it may nevertheless be costly for a cultural site. Had the artists' families not agreed to waive royalties, the Matisse and Picasso Web sites would not have been possible. (From an interview on June 2, 2003.)

[114] ORY-LAVOLLÉE, *Op. Cit.*, pp. 50-52.

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The ever-lengthening terms of copyright in the United States since the early 20th century are evidence of the desire to create immense private collections of works. Before 1909, works were protected for 28 years after their publication, with the possibility of extending the copyright for another 14 years. Then, until 1978, the extension was lengthened to 28 years, for a total of 56 years of protection. Since 1998, copyright provides protection for life plus 70 years or, if the rights belong to a corporation, 95 years after publication or 120 years after creation. One wonders what might have become of current popular culture if these rules had applied from the late 19th century onward. Consider, for example, the vampire Dracula, created by Bram Stoker in 1897. Under current American law, the first popular adaptations could only have appeared 70 years after the author's death, that is, in 1982. If the work had been assigned to a company, it would have been necessary to wait 95 years after the work's publication, i.e., 1992. No one can say if the character would finally have been forgotten between 1897 and 1992, or if adaptations authorized by the copyright holder over the years would have been enough to maintain the myth. However, one thing is certain: horror movies in the 1930s, '40s and '50s would have taken an entirely different direction. And some wonder whether Disney, which became successful by adapting works at large, is really helping culture by ensuring that no one can in turn use its works in creative work (by fighting to lengthen copyright terms).

The ideal copyright system would accomplish four objectives:

- provide decent revenues for artists;
- allow publishers to disseminate works as widely as possible;
- facilitate access to the works by those who wish to use them in whole or in part; and
- allow for the eventual return of the work to the public domain, so that it can in turn serve as a basis for creative work without any restriction.

6.21 Re-establishing the Balance Between Authors and Distributors

The field of copyright is in a tumult. On one hand, artists are under increasing pressure to assign their rights, which facilitates the reuse of their works on the Internet. On the other hand, France is seriously considering legislating to give even employed artists, who are currently excluded from the system, access to copyright. Moreover, users must now pay to consult major scholarly journals online. When these journals are not available in hardcopy, the libraries that "hold" them pay only for a right of access and the perpetuity of the service is not assured. They are not permitted to create archives, as with the hardcopy version.[115]

Reaction was swift: 30,000 researchers signed a petition demanding free online access to all science— the Web's very first objective. This movement has given rise to two new free publications,[116] in which the authors—the scientists—retain all their rights, to the detriment of major publishing groups.

Another example: open-source software. Software licenses are increasingly written for the benefit of the publisher and the publisher alone. Conventional rights (like that of private copy, for example) are sometimes equated with piracy and some software publishers assume the right to check the content of the user's hard drive over the Internet.

A number of countries, including Canada, are now in the process of amending their copyright laws. These amendments have led to fierce competition by rival pressure groups. Regardless of who wins, without a balanced system, it will be difficult for the industry to grow.

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[115] In this regard, see the Web site for the Budapest Open Access Initiative: http://www.soros.org/openaccess/.

[116] FOUCART, Stéphane. "Création de deux revues scientifiques gratuites," in *Le Monde*, May 25, 2003.

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6.22 Copyright Collectives

Where authors have rights, it is important to simplify management of those rights, particularly their purchase. Copyright collectives meet this need. Generally, they bring together all the members of a given craft (for example: writers and musicians) and serve as a mandatory gateway for all negotiations of use.

In their current form, these collectives are not problem-free. All works are subject to exactly the same system—an artist cannot sell of his or her lesser known works for less or charge more for works that established his or her reputation—a practice that certainly reflects the labour-union origins of these movements and perhaps also the difficulty of negotiating different rates before information technology arrived. Nor do such collectives settle the issue of works that predate their creation but are not on the verge of becoming public domain again. However, copyright collectives at least have the merit of being a one-stop service for producers who want to easily—and at a price that it easy to determine—obtain the right to reuse works in other products. From the producer's point of view, the main drawback to these collectives is that there aren't enough of them. Many crafts in the arts are not organized enough to create a copyright collective.[117] In fact, France has created a one-stop service for negotiating and paying royalties on works of every kind. Where the copyright holders cannot be contacted, payment of a flat rate allows the use of a work without having to resort to a lengthy legal process to release the rights to that work.

Copyright collectives are also mandated to arbitrate claims between copyright holders. There are so many copyright claims on the revenues of producers that profitable use of the works is seriously compromised, if not impossible. The lack of coordination in the decisions by copyright holders sometimes blocks initiatives that are actually in their interest.[118]

6.3 The New Needs of Archivists

Librarians, curators, and all those who work to preserve our society's long-term memory are vociferously demanding new rights in light of a digital revolution that focuses only on the short term. These demands may seem irrelevant to the economic interests examined in this study. However, a data file conserved today will be a rare historic source for tomorrow's producers. It is a matter of preparing for the future. The first right that librarians request for digital works is the right to copy those works in order to have at least one archive copy. As explained in Chapter 5, to be effective, conservation processes must begin as soon as the work is created. That is not possible with most of the licenses currently held. If copyright has to expire before conservation can begin, the work has every chance of being lost well before then.

More sensitive yet, libraries are asking for the right to modify digital works. These modifications include migration to new formats; the removal of certain elements in order to comply with other copyright limitations; and the elimination of certain outdated software protection mechanisms. Without these measures, it may be impossible to preserve software for the long term at an acceptable cost.[119]

These privileges are not radically different from those that libraries already have for books. Applying those rights to digital data will require either amendments to national laws or an agreement by the entire industry so that in addition to short-term rights of access, libraries can also pay a flat rate for the additional rights they need for archiving.

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[117] The Canadian OnDisC Alliance, which is in the process of being created, is one example of a copyright collective. However, OnDisC Alliance covers only the educational and teaching materials sector. WALL COMMUNICATIONS. *A Study of Business Models Sustaining the Development of Digital Cultural Content*. Ottawa, June 2002. p. 59.

[118] ORY-LAVOLLÉE, *Op. Cit.*, p. 56.

[119] The Cedars Project. *The Cedars Guide to Intellectual Property Rights*. March 2002, p. 10. http://www.leeds.ac.uk/cedars/guidto/ipr/

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6.31 The Explosion of Digital Culture

In 1999, total content production (digital or not) represented a total of one or two exabytes, that is, 10^{18} bytes in total. In comparison, the 80 billion photos taken every year all over the world represent 410,000 terabytes of data, or 20% of the total. Television and home video account for somewhat less, at about 300,000 terabytes.

Data on the hard drives of personal computers (about 766,000 terabytes per year), on government servers (460,000 terabytes per year), and on business servers (167,000 terabytes) represent enormous volumes of digital information for archiving. In contrast, the music and film industries are lightweights with 58 and 16 terabytes respectively (and another 22 terabytes in the film industry to account for DVDs).

Of this mass of data, documents—books and periodicals—represent only 0.003% of the total, that is, about 40 or 45 terabytes of data.[120] Institutions are mainly focussed on conserving these media. Thus, only a fraction, a minute percentage, of the information produced every year is actually conserved. And for some media, like the Web or certain work documents, the rate of conservation is particularly low. Yet they conceal treasures for tomorrow's historians.

6.32 Why Archive the Web?

The Web is the greatest source of documents ever assembled. In late 2000 it contained four billion public pages and 550 billion pages buried on databases. Since then it has continued to expand. But the Web is vast and often ephemeral. The average life of a Web page is only 44 days, and 44% of the sites available in 1998 were no longer online in 1999.[121] Pages disappear almost as quickly as they are created and soon, no one will know what the Web contains or contained. Even the statistics cited in these two paragraphs are no longer compiled today.

The challenge is four-fold:

- cultural: the rate at which Web sites are shut down and data destroyed indicates how little the budding Internet industry values its history;
- technical: the long-term conservation of data is an issue described earlier at length;
- economic: archives must be maintained, yet the return on investment is non-existent, except for a few researchers who will find them of historical interest; and
- legal: the Web is protected[122] by copyright and archivists are not permitted to make copies of it.

Specific characteristics of the Web make archiving particularly difficult. For one thing, every Web page is linked to an average of 15 other pages. More complicated yet, each page uses an average of five objects stored elsewhere (generally images and sounds). There are 500 times as many pages that present the opposite problem: they are buried in databases and cannot be detected and archived with regular search engines. Excluding more technically advanced Web sites from archiving would result in a biased version of today's Web. Also, how often should the Web be archived? Should Web sites be copied on a daily, monthly, or yearly basis? It depends on how often the site is updated. Finally, how can Web sites be archived selectively? No tool allows, for example, *only* Canadian sites, but *all* Canadian sites, to be archived.

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[120] LYMAN, Peter and VARIAN, Hal. R. *How Much Information,* 2000. Data excerpted from http://www.sims.berkeley.edu/how-much-info on May 27, 2003.
[121] LYMAN, Peter. *Archiving the World Wide Web,* p. 1. http://www.clir.org/pubs/reports/pub106/web.html.
[122] A bizarre kind of protection, which accelerates the destruction of Web pages from the past!

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6.33 The Findings of Several National Experiments

In 1996, Sweden launched the ambitious Kulturarw[3] project to collect, preserve and provide access to all electronic documents published online. In August 2000, the entire Swedish Web had already been downloaded seven times. The resulting collection consisted of 70 million files and its total size was 1,500 gigabytes. The last pass over the Web identified about 60,000 Swedish Web servers.[123] The scale of the collection was based on one premise: we cannot predict what will be of historic value. The project encountered a problem with the definition—what sites are really "Swedish"?—as well as a logistical challenge: it would take about two months to collect data from all the sites found. They had to give up the idea of daily downloads to collect the latest editions of newspapers!

The archive was organized like the regular Web. Users navigate it using a regular browser, and a key-word search engine may be added. These user-friendly methods were chosen over more advanced methods. However, the public cannot consult the archive because the legislative framework does not provide for public access. Legal deposit of digital data is being studied.

Without jumping into the fray, France has carefully studied the implications of Web archiving.[124] Its study agreed with the worrying findings of the Swedes, but proposes a few advanced solutions with potential, mainly mathematical formulas and algorithms. These formulas are supposed to take into account a Web site's importance, its interest to the public, and whether or not the site should be visited often. The document notably insists on the fact that conventional legal deposit, where a publisher sends a book to a national library, will not work on the Internet. First, instead of dealing with a few hundred relatively disciplined book publishers, national libraries would be dealing with thousands of Web publishers, many of which are just individuals. They cannot be expected to submit their work with the necessary discipline, whether or not it is legislated.

Second, Web site content is constantly being updated. This would require ongoing "deposits"[125] by content providers, which is also unreasonable. Legal deposit on the Web would therefore consist of a right of "legal withdrawal" allowing archivists to choose those sites most worth conserving and relying on information technology tools for the rest. In short, the old "push" model of legal deposit must be replaced by a "pull" model.

Canada, with its Networked Electronic Publications Policy, and Australia, with Pandora, have experimented with much less ambitious, yet effective, models where a few hundred Web sites deemed to be of national interest are visited regularly, then archived manually. The advantage of these policies is that they are simple and work within the current regulatory framework. But their scope remains limited.

This review would be incomplete if it failed to mention the Internet Archive,[126] a private not-for-profit initiative. The group, which has been based in California since 1996, hopes to archive the whole Internet, which is not entirely possible given its current resources. Moreover, American Web sites tend to be over-represented in the archive. In total, about 12 terabytes of new data are added to the archive every month. The site is swimming in rather murky legal waters and apparently has faced several lawsuits in the past few years. Nonetheless, and despite its limited resources, the Internet Archive is a pioneer of Web archiving and particularly in consultation of the data thus accumulated. Its expertise in rare or vanished file formats is also impressive.

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[123] ARVIDSON, Allan and MANNERHEIM, Johan. *The Kulturarw[3] Project – The Royal Swedish Web Archiw3e – An Example of "Complete" Collection of Web Pages*. August 2000. http://www.ifla.org/IV/ifla66/papers/154-157e.htm.

[124] ABITEBOUL, COBÉNA, MASANES and SEDRATI. *A First Experience in Archiving the French Web*. 2002. http://www-rocq.inria.fr/~cobena/Publications/archivingECDL2002.pdf.

[125] See Appendix 2: Extending Legal Deposit.

[126] http://www.archive.org/

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In any case, it is clear that in coming years, legal issues will become increasingly important in online cultural content. Government decisions, whatever their nature, will have a major impact on the industry's structure and on the business practices of content providers.

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Conclusion

We have examined the many available options in a context as broad as the Internet's diverse cultural content. Certain parameters allow for an assessment of the characteristics of each model on the Internet. Any model is valid on the Internet, as long as the target audience and the rationale of the product or service have been identified. It is also necessary to understand a project's limitations and to take advantage of all the possibilities the Web offers.

While no conclusion can be drawn regarding which models are best suited to cultural content on the Internet, it is clear that revenues from paid content will continue to climb and foster consumption patterns that will make the user-pay approach easier for some cultural content. Distribution will remain a strong element, particularly with the greater capabilities of broadband, favouring more diverse and better quality video. Third-party funding will also be favoured by the probable development of advertising revenues. However, some cultural content cannot be accessed with limited bandwidth and cannot be the object of advertising coverage. It is important for that content to be made available in a technically effective way that takes long-term costs into consideration and favours the content's use or reuse.

However, action must be taken to create a favourable environment that facilitates access to the resources needed to create, develop and promote online cultural initiatives. Administration of copyright impedes the development of certain initiatives, notably for private producers. Governments must pay special attention to every aspect of the legal issue in order to encourage the development of Web content.

In fact, many producers still perceive cultural ventures as risky in an industry that continues to be marked by the *cultural CD-ROM* and its poor commercial results. Most projects in the Canadian private sector result from commissions rather than the creation of unique content, leaving little margin for use of intellectual property.

The range of approaches and uses on the Internet leaves room to invent new models that reflect the diversity of cultural content. This study is a starting point that, far from dictating an absolute understanding of economic models and business strategies, must open new paths and, in particular, create an awareness of emerging models that may work in the cultural sector.

In this context, it is important to monitor the Web in order to identify and promote promising initiatives that may lead to a fertile cultural sector on the Web.

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Appendix 1: Other Determinants of Value on the Internet

1. Types of Interaction	
There are generally three types of interaction on the Internet: *person-to-person* interaction, *person-to-machine* interaction, and *machine-to-machine* interaction. This intuitive classification is useful in understanding the various scenarios possible on the Internet. In person-to-person interaction, for example, the machine is perceived as an intermediary that adds little value other than making communication possible. However, that interaction may be developed toward a multidimensional person-to-machine-to-person approach, where the machine provides the person with the means to facilitate the person-to-person relation. Network games may be a good example: they involve person-to-person interaction, but the machine can interact with each player.	
Levels of Interaction	
Person-to-person	*Chatting*
Person-to-machine	*dissemination of videos*
Machine-to-machine	*exchanges among intelligent agents*

2. Types of Producer	
Individual producer	*The credibility of personal Web sites may depend on the reputation of its author and the competition.*
Not-for-profit organizations	*The credibility of the Web site depends primarily on the organization's credibility in the material world, then on how the content is presented.*
Private producer	*This producer is expected to provide guaranteed quality; however, there is no limit as to the type of creation, except budgetwise.*
Government organization	*This producer is subject to the most constraints, including official policies that limit its creative freedom. The value attributed to the information varies based on the organization's credibility.*

3. Low-Speed Vs. High-Speed Internet Access
Some Internet market segments are still visited by users with low-speed modems. Others are almost exclusively used by those with high-speed Internet access. Before launching a project, therefore, it is important to know whether the target audience uses a low-speed or high-speed connection. Video dissemination is a good example of this. It is therefore important to consider the environment in which a Web project is created. Use often differs based on the target audience and the tools available in a given area. If broadband Internet access is available widely in one area and young people are the first to use it, their appropriation will be based on demanding criteria associated with their Internet habits.

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4. Fixed Access or Mobile Access
Most people still use fixed access Internet, i.e., they always use the Internet from the same computer at the same location. Access to mobile solutions like a telephone or a personal digital assistant entails specific requirements, like content that can be accessed quickly.

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Appendix 2: Extending Legal Deposit

Extending Legal Deposit

A library in the United States can add to its collection in four ways. Mandatory legal deposit of certain works is one such way; books purchased or donated is another, as is the purchase of works through subscription; finally, copies can be made under an agreement with copyright holders.[127] The situation in other countries is similar.

There is considerable pressure to add new clauses to existing laws on legal deposit, clauses that would give libraries permission to undertake certain conservation practices currently not allowed. Scandinavian countries are ahead in this area. In the late 1990s, Norway enacted a law requiring online periodical publishers to send their material to the national library. The law was misinterpreted and Norway received a great deal of irrelevant material. In 1998, Denmark adopted a similar law requiring publishers to simply announce the publication of every issue of a periodical. It is up to the central library to download the periodical where it deems appropriate. However, it turned out that a fair part of new publications were never declared. In 1999, a Finnish working group went a step further by proposing that the central library be able to scan the national Web and archive any material it deemed relevant. It also introduced mandatory legal deposit (in the form of a delivery by the publisher) for digital material published offline (CD-ROMs, mainly). The bill acknowledged the substantial commercial value of the material gathered in this way and was designed to protect copyright holders by highly restricting access to the resulting archive.[128]

Progress in other countries is not as quick, but there is solid consensus on the issue. The European Union proposes that existing legal deposit systems be broadened to include purely digital material (material not published on any other medium). Where no legal deposit system yet exists, the State should assign the mandate to a reliable organization.[129] The United States, however, is reluctant to head in that direction. In October 2002, an important study on preserving digital archives[130] suggested many interesting technological options, but was remarkably timid about legal deposit. It analysed legal obstacles at length and, for the time being, ruled out any form of legal deposit. At the very most its authors expressed a wish that publishers be more cooperative with libraries with respect to conservation.

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[127] BESEK, June M. *Copyright Issues Relevant to the Creation of a Digital Archive: A Preliminary Assessment.* Council on Library and Information Resources, Washington D.C. and Library of Congress, January 2003, pp. 16-17. http://www.clir.org/pubs/abstract/pub112/abst.html.

[128] HAKALA, Juha. *Electronic Publications as Legal Deposit Copies.* January 1999. http://www.lib.helsinki.fi/tietolinja/0199/legaldep.html.

[129] The DigiCULT report, *Op. Cit.*, p. 58.

[130] The Library of Congress, collaborative initiative: *Preserving our Digital Heritage: Plan for the National Digital Information Infrastructure and Preservation Program.* October 2002. http://www.digitalpreservation.gov/ndiipp/repor/repor_plan.html.

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Chapter 6

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